SEQUENCE LISTING

<110> Wilson, James M.
       Xiao, Weidong

<120> Adeno-Associated Virus Serotype I Nucleic Acid Sequences,
       Vectors and Host Cells Containing Same

<130> GNVPN.031USA

<140> US 09/807,802
<141> 2001-04-17

<150> US 60/107,114
<151> 1998-11-05

<150> PCT/US99/25694
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cgtaaattac gtcataggggg agtggtcctg tattagctgt cacgtgagtg cttttgcgac   240

attttgcgac accacgtggc catttagggt atatatggcc gagtgagcga gcaggatctc   300

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gtg atc aag gtg ccg agc gac ctg gac gag cac ctg ccg ggc att tct   403
Val Ile Lys Val Pro Ser Asp Leu Asp Glu His Leu Pro Gly Ile Ser
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gac tcg ttt gtg agc tgg gtg gcc gag aag gaa tgg gag ctg ccc ccg   451
Asp Ser Phe Val Ser Trp Val Ala Glu Lys Glu Trp Glu Leu Pro Pro
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gat tct gac atg gat ctg aat ctg att gag cag gca ccc ctg acc gtg        499
Asp Ser Asp Met Asp Leu Asn Leu Ile Glu Gln Ala Pro Leu Thr Val
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gcc gag aag ctg cag cgc gac ttc ctg gtc caa tgg cgc cgc gtg agt        547
Ala Glu Lys Leu Gln Arg Asp Phe Leu Val Gln Trp Arg Arg Val Ser
                60                  65                  70

aag gcc ccg gag gcc ctc ttc ttt gtt cag ttc gag aag ggc gag tcc        595
Lys Ala Pro Glu Ala Leu Phe Phe Val Gln Phe Glu Lys Gly Glu Ser
            75                  80                  85

tac ttc cac ctc cat att ctg gtg gag acc acg ggg gtc aaa tcc atg        643
Tyr Phe His Leu His Ile Leu Val Glu Thr Thr Gly Val Lys Ser Met
            90                  95                  100

gtg ctg ggc cgc ttc ctg agt cag att agg gac aag ctg gtg cag acc        691
Val Leu Gly Arg Phe Leu Ser Gln Ile Arg Asp Lys Leu Val Gln Thr
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atc tac cgc ggg atc gag ccg acc ctg ccc aac tgg ttc gcg gtg acc        739
Ile Tyr Arg Gly Ile Glu Pro Thr Leu Pro Asn Trp Phe Ala Val Thr
120                 125                 130                 135

aag acg cgt aat ggc gcc gga ggg ggg aac aag gtg gtg gac gag tgc        787
Lys Thr Arg Asn Gly Ala Gly Gly Gly Asn Lys Val Val Asp Glu Cys
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tac atc ccc aac tac ctc ctg ccc aag act cag ccc gag ctg cag tgg        835
Tyr Ile Pro Asn Tyr Leu Leu Pro Lys Thr Gln Pro Glu Leu Gln Trp
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gcg tgg act aac atg gag gag tat ata agc gcc tgt ttg aac ctg gcc        883
Ala Trp Thr Asn Met Glu Glu Tyr Ile Ser Ala Cys Leu Asn Leu Ala
            170                 175                 180

gag cgc aaa cgg ctc gtg gcg cag cac ctg acc cac gtc agc cag acc        931
Glu Arg Lys Arg Leu Val Ala Gln His Leu Thr His Val Ser Gln Thr
            185                 190                 195

cag gag cag aac aag gag aat ctg aac ccc aat tct gac gcg cct gtc        979
Gln Glu Gln Asn Lys Glu Asn Leu Asn Pro Asn Ser Asp Ala Pro Val
200                 205                 210                 215

atc cgg tca aaa acc tcc gcg cgc tac atg gag ctg gtc ggg tgg ctg       1027
Ile Arg Ser Lys Thr Ser Ala Arg Tyr Met Glu Leu Val Gly Trp Leu
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gtg gac cgg ggc atc acc tcc gag aag cag tgg atc cag gag gac cag       1075
Val Asp Arg Gly Ile Thr Ser Glu Lys Gln Trp Ile Gln Glu Asp Gln
                235                 240                 245

gcc tcg tac atc tcc ttc aac gcc gct tcc aac tcg cgg tcc cag atc       1123
Ala Ser Tyr Ile Ser Phe Asn Ala Ala Ser Asn Ser Arg Ser Gln Ile
            250                 255                 260

aag gcc gct ctg gac aat gcc ggc aag atc atg gcg ctg acc aaa tcc       1171
Lys Ala Ala Leu Asp Asn Ala Gly Lys Ile Met Ala Leu Thr Lys Ser
            265                 270                 275
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gcg ccc gac tac ctg gta ggc ccc gct ccg ccc gcg gac att aaa acc    1219
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aac cgc atc tac cgc atc ctg gag ctg aac ggc tac gaa cct gcc tac    1267
Asn Arg Ile Tyr Arg Ile Leu Glu Leu Asn Gly Tyr Glu Pro Ala Tyr
                    300                 305                 310

gcc ggc tcc gtc ttt ctc ggc tgg gcc cag aaa agg ttc ggg aag cgc    1315
Ala Gly Ser Val Phe Leu Gly Trp Ala Gln Lys Arg Phe Gly Lys Arg
                315                 320                 325

aac acc atc tgg ctg ttt ggg ccg gcc acc acg ggc aag acc aac atc    1363
Asn Thr Ile Trp Leu Phe Gly Pro Ala Thr Thr Gly Lys Thr Asn Ile
                330                 335                 340

gcg gaa gcc atc gcc cac gcc gtg ccc ttc tac ggc tgc gtc aac tgg    1411
Ala Glu Ala Ile Ala His Ala Val Pro Phe Tyr Gly Cys Val Asn Trp
        345                 350                 355

acc aat gag aac ttt ccc ttc aat gat tgc gtc gac aag atg gtg atc    1459
Thr Asn Glu Asn Phe Pro Phe Asn Asp Cys Val Asp Lys Met Val Ile
360                 365                 370                 375

tgg tgg gag gag ggc aag atg acg gcc aag gtc gtg gag tcc gcc aag    1507
Trp Trp Glu Glu Gly Lys Met Thr Ala Lys Val Val Glu Ser Ala Lys
                380                 385                 390

gcc att ctc ggc ggc agc aag gtg cgc gtg gac caa aag tgc aag tcg    1555
Ala Ile Leu Gly Gly Ser Lys Val Arg Val Asp Gln Lys Cys Lys Ser
                395                 400                 405

tcc gcc cag atc gac ccc acc ccc gtg atc gtc acc tcc aac acc aac    1603
Ser Ala Gln Ile Asp Pro Thr Pro Val Ile Val Thr Ser Asn Thr Asn
            410                 415                 420

atg tgc gcc gtg att gac ggg aac agc acc acc ttc gag cac cag cag    1651
Met Cys Ala Val Ile Asp Gly Asn Ser Thr Thr Phe Glu His Gln Gln
        425                 430                 435

ccg ttg cag gac cgg atg ttc aaa ttt gaa ctc acc cgc cgt ctg gag    1699
Pro Leu Gln Asp Arg Met Phe Lys Phe Glu Leu Thr Arg Arg Leu Glu
440                 445                 450                 455

cat gac ttt ggc aag gtg aca aag cag gaa gtc aaa gag ttc ttc cgc    1747
His Asp Phe Gly Lys Val Thr Lys Gln Glu Val Lys Glu Phe Phe Arg
                460                 465                 470

tgg gcg cag gat cac gtg acc gag gtg gcg cat gag ttc tac gtc aga    1795
Trp Ala Gln Asp His Val Thr Glu Val Ala His Glu Phe Tyr Val Arg
            475                 480                 485

aag ggt gga gcc aac aaa aga ccc gcc ccc gat gac gcg gat aaa agc    1843
Lys Gly Gly Ala Asn Lys Arg Pro Ala Pro Asp Asp Ala Asp Lys Ser
            490                 495                 500

gag ccc aag cgg gcc tgc ccc tca gtc gcg gat cca tcg acg tca gac    1891
Glu Pro Lys Arg Ala Cys Pro Ser Val Ala Asp Pro Ser Thr Ser Asp
505                 510                 515
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gcg gaa gga gct ccg gtg gac ttt gcc gac agg tac caa aac aaa tgt          1939
Ala Glu Gly Ala Pro Val Asp Phe Ala Asp Arg Tyr Gln Asn Lys Cys
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tct cgt cac gcg ggc atg ctt cag atg ctg ttt ccc tgc aag aca tgc          1987
Ser Arg His Ala Gly Met Leu Gln Met Leu Phe Pro Cys Lys Thr Cys
                540              545                  550

gag aga atg aat cag aat ttc aac att tgc ttc acg cac ggg acg aga          2035
Glu Arg Met Asn Gln Asn Phe Asn Ile Cys Phe Thr His Gly Thr Arg
                555              560                  565

gac tgt tca gag tgc ttc ccc ggc gtg tca gaa tct caa ccg gtc gtc          2083
Asp Cys Ser Glu Cys Phe Pro Gly Val Ser Glu Ser Gln Pro Val Val
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aga aag agg acg tat cgg aaa ctc tgt gcc att cat cat ctg ctg ggg          2131
Arg Lys Arg Thr Tyr Arg Lys Leu Cys Ala Ile His His Leu Leu Gly
        585              590                  595

cgg gct ccc gag att gct tgc tcg gcc tgc gat ctg gtc aac gtg gac          2179
Arg Ala Pro Glu Ile Ala Cys Ser Ala Cys Asp Leu Val Asn Val Asp
600              605                  610                  615

ctg gat gac tgt gtt tct gag caa taa atgacttaaa ccaggt atg gct gcc       2231
Leu Asp Asp Cys Val Ser Glu Gln                            Met Ala Ala
                620                                              625

gat ggt tat ctt cca gat tgg ctc gag gac aac ctc tct gag ggc att          2279
Asp Gly Tyr Leu Pro Asp Trp Leu Glu Asp Asn Leu Ser Glu Gly Ile
            630              635                  640

cgc gag tgg tgg gac ttg aaa cct gga gcc ccg aag ccc aaa gcc aac          2327
Arg Glu Trp Trp Asp Leu Lys Pro Gly Ala Pro Lys Pro Lys Ala Asn
            645              650                  655

cag caa aag cag gac gac ggc cgg ggt ctg gtg ctt cct ggc tac aag          2375
Gln Gln Lys Gln Asp Asp Gly Arg Gly Leu Val Leu Pro Gly Tyr Lys
        660              665                  670

tac ctc gga ccc ttc aac gga ctc gac aag ggg gag ccc gtc aac gcg          2423
Tyr Leu Gly Pro Phe Asn Gly Leu Asp Lys Gly Glu Pro Val Asn Ala
675              680              685                  690

gcg gac gca gcg gcc ctc gag cac gac aag gcc tac gac cag cag ctc          2471
Ala Asp Ala Ala Ala Leu Glu His Asp Lys Ala Tyr Asp Gln Gln Leu
                695              700                  705

aaa gcg ggt gac aat ccg tac ctg cgg tat aac cac gcc gac gcc gag          2519
Lys Ala Gly Asp Asn Pro Tyr Leu Arg Tyr Asn His Ala Asp Ala Glu
            710              715                  720

ttt cag gag cgt ctg caa gaa gat acg tct ttt ggg ggc aac ctc ggg          2567
Phe Gln Glu Arg Leu Gln Glu Asp Thr Ser Phe Gly Gly Asn Leu Gly
        725              730                  735

cga gca gtc ttc cag gcc aag aag cgg gtt ctc gaa cct ctc ggt ctg          2615
Arg Ala Val Phe Gln Ala Lys Lys Arg Val Leu Glu Pro Leu Gly Leu
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gtt gag gaa ggc gct aag acg gct cct gga aag aaa cgt ccg gta gag     2663
Val Glu Glu Gly Ala Lys Thr Ala Pro Gly Lys Lys Arg Pro Val Glu
755             760         765             770

cag tcg cca caa gag cca gac tcc tcc tcg ggc atc ggc aag aca ggc     2711
Gln Ser Pro Gln Glu Pro Asp Ser Ser Ser Gly Ile Gly Lys Thr Gly
            775             780             785

cag cag ccc gct aaa aag aga ctc aat ttt ggt cag act ggc gac tca     2759
Gln Gln Pro Ala Lys Lys Arg Leu Asn Phe Gly Gln Thr Gly Asp Ser
            790             795             800

gag tca gtc ccc gat cca caa cct ctc gga gaa cct cca gca acc ccc     2807
Glu Ser Val Pro Asp Pro Gln Pro Leu Gly Glu Pro Pro Ala Thr Pro
            805             810             815

gct gct gtg gga cct act aca atg gct tca ggc ggt ggc gca cca atg     2855
Ala Ala Val Gly Pro Thr Thr Met Ala Ser Gly Gly Gly Ala Pro Met
    820             825             830

gca gac aat aac gaa ggc gcc gac gga gtg ggt aat gcc tca gga aat     2903
Ala Asp Asn Asn Glu Gly Ala Asp Gly Val Gly Asn Ala Ser Gly Asn
835             840             845             850

tgg cat tgc gat tcc aca tgg ctg ggc gac aga gtc atc acc acc agc     2951
Trp His Cys Asp Ser Thr Trp Leu Gly Asp Arg Val Ile Thr Thr Ser
                855             860             865

acc cgc acc tgg gcc ttg ccc acc tac aat aac cac ctc tac aag caa     2999
Thr Arg Thr Trp Ala Leu Pro Thr Tyr Asn Asn His Leu Tyr Lys Gln
            870             875             880

atc tcc agt gct tca acg ggg gcc agc aac gac aac cac tac ttc ggc     3047
Ile Ser Ser Ala Ser Thr Gly Ala Ser Asn Asp Asn His Tyr Phe Gly
            885             890             895

tac agc acc ccc tgg ggg tat ttt gat ttc aac aga ttc cac tgc cac     3095
Tyr Ser Thr Pro Trp Gly Tyr Phe Asp Phe Asn Arg Phe His Cys His
    900             905             910

ttt tca cca cgt gac tgg cag cga ctc atc aac aac aat tgg gga ttc     3143
Phe Ser Pro Arg Asp Trp Gln Arg Leu Ile Asn Asn Asn Trp Gly Phe
915             920             925             930

cgg ccc aag aga ctc aac ttc aaa ctc ttc aac atc caa gtc aag gag     3191
Arg Pro Lys Arg Leu Asn Phe Lys Leu Phe Asn Ile Gln Val Lys Glu
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gtc acg acg aat gat ggc gtc aca acc atc gct aat aac ctt acc agc     3239
Val Thr Thr Asn Asp Gly Val Thr Thr Ile Ala Asn Asn Leu Thr Ser
            950             955             960

acg gtt caa gtc ttc tcg gac tcg gag tac cag ctt ccg tac gtc ctc     3287
Thr Val Gln Val Phe Ser Asp Ser Glu Tyr Gln Leu Pro Tyr Val Leu
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ggc tct gcg cac cag ggc tgc ctc cct ccg ttc ccg gcg gac gtg ttc     3335
Gly Ser Ala His Gln Gly Cys Leu Pro Pro Phe Pro Ala Asp Val Phe
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995                 1000                  1005

gcc gtg gga cgt tca tcc   ttt tac tgc ctg gaa   tat ttc cct tct         3425
Ala Val Gly Arg Ser Ser   Phe Tyr Cys Leu Glu   Tyr Phe Pro Ser
1010                1015                  1020

cag atg ctg aga acg ggc   aac aac ttt acc ttc   agc tac acc ttt         3470
Gln Met Leu Arg Thr Gly   Asn Asn Phe Thr Phe   Ser Tyr Thr Phe
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gag gaa gtg cct ttc cac   agc agc tac gcg cac   agc cag agc ctg         3515
Glu Glu Val Pro Phe His   Ser Ser Tyr Ala His   Ser Gln Ser Leu
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gac cgg ctg atg aat cct   ctc atc gac caa tac   ctg tat tac ctg         3560
Asp Arg Leu Met Asn Pro   Leu Ile Asp Gln Tyr   Leu Tyr Tyr Leu
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aac aga act caa aat cag   tcc gga agt gcc caa   aac aag gac ttg         3605
Asn Arg Thr Gln Asn Gln   Ser Gly Ser Ala Gln   Asn Lys Asp Leu
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ctg ttt agc cgt ggg tct   cca gct ggc atg tct   gtt cag ccc aaa         3650
Leu Phe Ser Arg Gly Ser   Pro Ala Gly Met Ser   Val Gln Pro Lys
1085                1090                  1095

aac tgg cta cct gga ccc   tgt tat cgg cag cag   cgc gtt tct aaa         3695
Asn Trp Leu Pro Gly Pro   Cys Tyr Arg Gln Gln   Arg Val Ser Lys
1100                1105                  1110

aca aaa aca gac aac aac   aac agc aat ttt acc   tgg act ggt gct         3740
Thr Lys Thr Asp Asn Asn   Asn Ser Asn Phe Thr   Trp Thr Gly Ala
1115                1120                  1125

tca aaa tat aac ctc aat   ggg cgt gaa tcc atc   atc aac cct ggc         3785
Ser Lys Tyr Asn Leu Asn   Gly Arg Glu Ser Ile   Ile Asn Pro Gly
1130                1135                  1140

act gct atg gcc tca cac   aaa gac gac gaa gac   aag ttc ttt ccc         3830
Thr Ala Met Ala Ser His   Lys Asp Asp Glu Asp   Lys Phe Phe Pro
1145                1150                  1155

atg agc ggt gtc atg att   ttt gga aaa gag agc   gcc gga gct tca         3875
Met Ser Gly Val Met Ile   Phe Gly Lys Glu Ser   Ala Gly Ala Ser
1160                1165                  1170

aac act gca ttg gac aat   gtc atg att aca gac   gaa gag gaa att         3920
Asn Thr Ala Leu Asp Asn   Val Met Ile Thr Asp   Glu Glu Glu Ile
1175                1180                  1185

aaa gcc act aac cct gtg   gcc acc gaa aga ttt   ggg acc gtg gca         3965
Lys Ala Thr Asn Pro Val   Ala Thr Glu Arg Phe   Gly Thr Val Ala
1190                1195                  1200

gtc aat ttc cag agc agc   agc aca gac cct gcg   acc gga gat gtg         4010
Val Asn Phe Gln Ser Ser   Ser Thr Asp Pro Ala   Thr Gly Asp Val
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cat  gct  atg  gga  gca  tta   cct  ggc  atg  gtg  tgg   caa  gat  aga  gac        4055
His  Ala  Met  Gly  Ala  Leu   Pro  Gly  Met  Val  Trp   Gln  Asp  Arg  Asp
1220                 1225                      1230

gtg  tac  ctg  cag  ggt  ccc   att  tgg  gcc  aaa  att   cct  cac  aca  gat        4100
Val  Tyr  Leu  Gln  Gly  Pro   Ile  Trp  Ala  Lys  Ile   Pro  His  Thr  Asp
1235                 1240                      1245

gga  cac  ttt  cac  ccg  tct   cct  ctt. atg  ggc  ggc   ttt  gga  ctc  aag        4145
Gly  His  Phe  His  Pro  Ser   Pro  Leu  Met  Gly  Gly   Phe  Gly  Leu  Lys
1250                 1255                      1260

aac  ccg  cct  cct  cag  atc   ctc  atc  aaa  aac  acg   cct  gtt  cct  gcg        4190
Asn  Pro  Pro  Pro  Gln  Ile   Leu  Ile  Lys  Asn  Thr   Pro  Val  Pro  Ala
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aat  cct  ccg  gcg  gag  ttt   tca  gct  aca  aag  ttt   gct  tca  ttc  atc        4235
Asn  Pro  Pro  Ala  Glu  Phe   Ser  Ala  Thr  Lys  Phe   Ala  Ser  Phe  Ile
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acc  caa  tac  tcc  aca  gga   caa  gtg  agt  gtg  gaa   att  gaa  tgg  gag        4280
Thr  Gln  Tyr  Ser  Thr  Gly   Gln  Val  Ser  Val  Glu   Ile  Glu  Trp  Glu
1295                 1300                      1305

ctg  cag  aaa  gaa  aac  agc   aag  cgc  tgg  aat  ccc   gaa  gtg  cag  tac        4325
Leu  Gln  Lys  Glu  Asn  Ser   Lys  Arg  Trp  Asn  Pro   Glu  Val  Gln  Tyr
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aca  tcc  aat  tat  gca  aaa   tct  gcc  aac  gtt  gat   ttt  act  gtg  gac        4370
Thr  Ser  Asn  Tyr  Ala  Lys   Ser  Ala  Asn  Val  Asp   Phe  Thr  Val  Asp
1325                 1330                      1335

aac  aat  gga  ctt  tat  act   gag  cct  cgc  ccc  att   ggc  acc  cgt  tac        4415
Asn  Asn  Gly  Leu  Tyr  Thr   Glu  Pro  Arg  Pro  Ile   Gly  Thr  Arg  Tyr
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ctt  acc  cgt  ccc  ctg  taattacgtg ttaatcaata aaccggttga ttcgtttcag              4470
Leu  Thr  Arg  Pro  Leu
1355

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gagttgccca ctccctctct gcgcgctcgc tcgctcggtg gggcctgcgg accaaaggtc·              4650

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Lys Glu Trp Glu Leu Pro Pro Asp Ser Asp Met Asp Leu Asn Leu Ile
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Glu Gln Ala Pro Leu Thr Val Ala Glu Lys Leu Gln Arg Asp Phe Leu
    50              55                  60

Val Gln Trp Arg Arg Val Ser Lys Ala Pro Glu Ala Leu Phe Phe Val
65              70                  75                      80

Gln Phe Glu Lys Gly Glu Ser Tyr Phe His Leu His Ile Leu Val Glu
            85                  90                  95

Thr Thr Gly Val Lys Ser Met Val Leu Gly Arg Phe Leu Ser Gln Ile
            100             105                 110

Arg Asp Lys Leu Val Gln Thr Ile Tyr Arg Gly Ile Glu Pro Thr Leu
    115                 120                 125

Pro Asn Trp Phe Ala Val Thr Lys Thr Arg Asn Gly Ala Gly Gly Gly
    130             135                 140

Asn Lys Val Val Asp Glu Cys Tyr Ile Pro Asn Tyr Leu Leu Pro Lys
145             150                 155                 160

Thr Gln Pro Glu Leu Gln Trp Ala Trp Thr Asn Met Glu Glu Tyr Ile
            165                 170                 175

Ser Ala Cys Leu Asn Leu Ala Glu Arg Lys Arg Leu Val Ala Gln His
            180                 185                 190

Leu Thr His Val Ser Gln Thr Gln Glu Gln Asn Lys Glu Asn Leu Asn
        195                 200                 205

Pro Asn Ser Asp Ala Pro Val Ile Arg Ser Lys Thr Ser Ala Arg Tyr
    210                 215                 220

Met Glu Leu Val Gly Trp Leu Val Asp Arg Gly Ile Thr Ser Glu Lys
225                 230                 235                 240

Gln Trp Ile Gln Glu Asp Gln Ala Ser Tyr Ile Ser Phe Asn Ala Ala
            245                 250                 255

Ser Asn Ser Arg Ser Gln Ile Lys Ala Ala Leu Asp Asn Ala Gly Lys
            260                 265                 270

Ile Met Ala Leu Thr Lys Ser Ala Pro Asp Tyr Leu Val Gly Pro Ala
    275                 280                 285

Pro Pro Ala Asp Ile Lys Thr Asn Arg Ile Tyr Arg Ile Leu Glu Leu
    290                 295                 300

Asn Gly Tyr Glu Pro Ala Tyr Ala Gly Ser Val Phe Leu Gly Trp Ala
305                 310                 315                 320

Gln Lys Arg Phe Gly Lys Arg Asn Thr Ile Trp Leu Phe Gly Pro Ala
            325                 330                 335
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Thr Thr Gly Lys Thr Asn Ile Ala Glu Ala Ile Ala His Ala Val Pro
        340   345   350

Phe Tyr Gly Cys Val Asn Trp Thr Asn Glu Asn Phe Pro Phe Asn Asp
        355   360   365

Cys Val Asp Lys Met Val Ile Trp Trp Glu Glu Gly Lys Met Thr Ala
    370   375   380

Lys Val Val Glu Ser Ala Lys Ala Ile Leu Gly Gly Ser Lys Val Arg
385   390   395   400

Val Asp Gln Lys Cys Lys Ser Ser Ala Gln Ile Asp Pro Thr Pro Val
            405   410   415

Ile Val Thr Ser Asn Thr Asn Met Cys Ala Val Ile Asp Gly Asn Ser
        420   425   430

Thr Thr Phe Glu His Gln Gln Pro Leu Gln Asp Arg Met Phe Lys Phe
        435   440   445

Glu Leu Thr Arg Arg Leu Glu His Asp Phe Gly Lys Val Thr Lys Gln
    450   455   460

Glu Val Lys Glu Phe Phe Arg Trp Ala Gln Asp His Val Thr Glu Val
465   470   475   480

Ala His Glu Phe Tyr Val Arg Lys Gly Gly Ala Asn Lys Arg Pro Ala
            485   490   495

Pro Asp Asp Ala Asp Lys Ser Glu Pro Lys Arg Ala Cys Pro Ser Val
        500   505   510

Ala Asp Pro Ser Thr Ser Asp Ala Glu Gly Ala Pro Val Asp Phe Ala
        515   520   525

Asp Arg Tyr Gln Asn Lys Cys Ser Arg His Ala Gly Met Leu Gln Met
    530   535   540

Leu Phe Pro Cys Lys Thr Cys Glu Arg Met Asn Gln Asn Phe Asn Ile
545   550   555   560

Cys Phe Thr His Gly Thr Arg Asp Cys Ser Glu Cys Phe Pro Gly Val
            565   570   575

Ser Glu Ser Gln Pro Val Val Arg Lys Arg Thr Tyr Arg Lys Leu Cys
        580   585   590

Ala Ile His His Leu Leu Gly Arg Ala Pro Glu Ile Ala Cys Ser Ala
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Cys Asp Leu Val Asn Val Asp Leu Asp Asp Cys Val Ser Glu Gln
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Lys Ala Asn Gln Gln Lys Gln Asp Asp Gly Arg Gly Leu Val Leu Pro
        35   40   45

Gly Tyr Lys Tyr Leu Gly Pro Phe Asn Gly Leu Asp Lys Gly Glu Pro
    50   55   60

Val Asn Ala Ala Asp Ala Ala Ala Leu Glu His Asp Lys Ala Tyr Asp
65   70   75   80

Gln Gln Leu Lys Ala Gly Asp Asn Pro Tyr Leu Arg Tyr Asn His Ala
            85   90   95

Asp Ala Glu Phe Gln Glu Arg Leu Gln Glu Asp Thr Ser Phe Gly Gly
            100   105   110

Asn Leu Gly Arg Ala Val Phe Gln Ala Lys Lys Arg Val Leu Glu Pro
        115   120   125

Leu Gly Leu Val Glu Glu Gly Ala Lys Thr Ala Pro Gly Lys Lys Arg
    130   135   140

Pro Val Glu Gln Ser Pro Gln Glu Pro Asp Ser Ser Ser Gly Ile Gly
145   150   155   160

Lys Thr Gly Gln Gln Pro Ala Lys Lys Arg Leu Asn Phe Gly Gln Thr
            165   170   175

Gly Asp Ser Glu Ser Val Pro Asp Pro Gln Pro Leu Gly Glu Pro Pro
            180   185   190

Ala Thr Pro Ala Ala Val Gly Pro Thr Thr Met Ala Ser Gly Gly Gly
    195   200   205

Ala Pro Met Ala Asp Asn Asn Glu Gly Ala Asp Gly Val Gly Asn Ala
    210   215   220

Ser Gly Asn Trp His Cys Asp Ser Thr Trp Leu Gly Asp Arg Val Ile
225   230   235   240

Thr Thr Ser Thr Arg Thr Trp Ala Leu Pro Thr Tyr Asn Asn His Leu
            245   250   255

Tyr Lys Gln Ile Ser Ser Ala Ser Thr Gly Ala Ser Asn Asp Asn His
            260   265   270

Tyr Phe Gly Tyr Ser Thr Pro Trp Gly Tyr Phe Asp Phe Asn Arg Phe
        275   280   285

His Cys His Phe Ser Pro Arg Asp Trp Gln Arg Leu Ile Asn Asn Asn
    290   295   300

Trp Gly Phe Arg Pro Lys Arg Leu Asn Phe Lys Leu Phe Asn Ile Gln

Val Lys Glu Val Thr Thr Asn Asp Gly Val Thr Thr Ile Ala Asn Asn
            325   330   335

Leu Thr Ser Thr Val Gln Val Phe Ser Asp Ser Glu Tyr Gln Leu Pro
            340   345   350

Tyr Val Leu Gly Ser Ala His Gln Gly Cys Leu Pro Pro Phe Pro Ala
            355   360   365

Asp Val Phe Met Ile Pro Gln Tyr Gly Tyr Leu Thr Leu Asn Asn Gly
    370   375   380

Ser Gln Ala Val Gly Arg Ser Ser Phe Tyr Cys Leu Glu Tyr Phe Pro
385   390   395   400

Ser Gln Met Leu Arg Thr Gly Asn Asn Phe Thr Phe Ser Tyr Thr Phe
            405   410   415

Glu Glu Val Pro Phe His Ser Ser Tyr Ala His Ser Gln Ser Leu Asp
            420   425   430

Arg Leu Met Asn Pro Leu Ile Asp Gln Tyr Leu Tyr Tyr Leu Asn Arg
            435   440   445

Thr Gln Asn Gln Ser Gly Ser Ala Gln Asn Lys Asp Leu Leu Phe Ser
    450   455   460

Arg Gly Ser Pro Ala Gly Met Ser Val Gln Pro Lys Asn Trp Leu Pro
465   470   475   480

Gly Pro Cys Tyr Arg Gln Gln Arg Val Ser Lys Thr Lys Thr Asp Asn
            485   490   495

Asn Asn Ser Asn Phe Thr Trp Thr Gly Ala Ser Lys Tyr Asn Leu Asn
            500   505   510

Gly Arg Glu Ser Ile Ile Asn Pro Gly Thr Ala Met Ala Ser His Lys
            515   520   525

Asp Asp Glu Asp Lys Phe Phe Pro Met Ser Gly Val Met Ile Phe Gly
    530   535   540

Lys Glu Ser Ala Gly Ala Ser Asn Thr Ala Leu Asp Asn Val Met Ile
545   550   555   560

Thr Asp Glu Glu Glu Ile Lys Ala Thr Asn Pro Val Ala Thr Glu Arg
            565   570   575

Phe Gly Thr Val Ala Val Asn Phe Gln Ser Ser Ser Thr Asp Pro Ala
            580   585   590

Thr Gly Asp Val His Ala Met Gly Ala Leu Pro Gly Met Val Trp Gln
            595   600   605

Asp Arg Asp Val Tyr Leu Gln Gly Pro Ile Trp Ala Lys Ile Pro His
    610   615   620

Thr Asp Gly His Phe His Pro Ser Pro Leu Met Gly Gly Phe Gly Leu

625				630				635					640	

Lys Asn Pro Pro Pro Gln Ile Leu Ile Lys Asn Thr Pro Val Pro Ala
              645   650   655

Asn Pro Pro Ala Glu Phe Ser Ala Thr Lys Phe Ala Ser Phe Ile Thr
            660   665   670

Gln Tyr Ser Thr Gly Gln Val Ser Val Glu Ile Glu Trp Glu Leu Gln
      675   680   685

Lys Glu Asn Ser Lys Arg Trp Asn Pro Glu Val Gln Tyr Thr Ser Asn
    690   695   700

Tyr Ala Lys Ser Ala Asn Val Asp Phe Thr Val Asp Asn Asn Gly Leu
705   710   715   720

Tyr Thr Glu Pro Arg Pro Ile Gly Thr Arg Tyr Leu Thr Arg Pro Leu
            725   730   735

<210> 4
<211> 1872
<212> DNA
<213> AAV-1

<220>
<221> CDS
<222> (1)..(1869)
<223>

<400> 4
atg ccg ggc ttc tac gag atc gtg atc aag gtg ccg agc gac ctg gac   48
Met Pro Gly Phe Tyr Glu Ile Val Ile Lys Val Pro Ser Asp Leu Asp
1   5   10   15

gag cac ctg ccg ggc att tct gac tcg ttt gtg agc tgg gtg gcc gag   96
Glu His Leu Pro Gly Ile Ser Asp Ser Phe Val Ser Trp Val Ala Glu
           20   25   30

aag gaa tgg gag ctg ccc ccg gat tct gac atg gat ctg aat ctg att   144
Lys Glu Trp Glu Leu Pro Pro Asp Ser Asp Met Asp Leu Asn Leu Ile
         35   40   45

gag cag gca ccc ctg acc gtg gcc gag aag ctg cag cgc gac ttc ctg   192
Glu Gln Ala Pro Leu Thr Val Ala Glu Lys Leu Gln Arg Asp Phe Leu
     50   55   60

gtc caa tgg cgc cgc gtg agt aag gcc ccg gag gcc ctc ttc ttt gtt   240
Val Gln Trp Arg Arg Val Ser Lys Ala Pro Glu Ala Leu Phe Phe Val
65   70   75   80

cag ttc gag aag ggc gag tcc tac ttc cac ctc cat att ctg gtg gag   288
Gln Phe Glu Lys Gly Glu Ser Tyr Phe His Leu His Ile Leu Val Glu
         85   90   95

acc acg ggg gtc aaa tcc atg gtg ctg ggc cgc ttc ctg agt cag att   336
Thr Thr Gly Val Lys Ser Met Val Leu Gly Arg Phe Leu Ser Gln Ile
           100   105   110

```
agg gac aag ctg gtg cag acc atc tac cgc ggg atc gag ccg acc ctg       384
Arg Asp Lys Leu Val Gln Thr Ile Tyr Arg Gly Ile Glu Pro Thr Leu
        115                 120                 125

ccc aac tgg ttc gcg gtg acc aag acg cgt aat ggc gcc gga ggg ggg       432
Pro Asn Trp Phe Ala Val Thr Lys Thr Arg Asn Gly Ala Gly Gly Gly
        130                 135                 140

aac aag gtg gtg gac gag tgc tac atc ccc aac tac ctc ctg ccc aag       480
Asn Lys Val Val Asp Glu Cys Tyr Ile Pro Asn Tyr Leu Leu Pro Lys
145                 150                 155                 160

act cag ccc gag ctg cag tgg gcg tgg act aac atg gag gag tat ata       528
Thr Gln Pro Glu Leu Gln Trp Ala Trp Thr Asn Met Glu Glu Tyr Ile
                165                 170                 175

agc gcc tgt ttg aac ctg gcc gag cgc aaa cgg ctc gtg gcg cag cac       576
Ser Ala Cys Leu Asn Leu Ala Glu Arg Lys Arg Leu Val Ala Gln His      ⌐
                180                 185                 190

ctg acc cac gtc agc cag acc cag gag cag aac aag gag aat ctg aac       624
Leu Thr His Val Ser Gln Thr Gln Glu Gln Asn Lys Glu Asn Leu Asn
                195                 200                 205

ccc aat tct gac gcg cct gtc atc cgg tca aaa acc tcc gcg cgc tac       672
Pro Asn Ser Asp Ala Pro Val Ile Arg Ser Lys Thr Ser Ala Arg Tyr
        210                 215                 220

atg gag ctg gtc ggg tgg ctg gtg gac cgg ggc atc acc tcc gag aag       720
Met Glu Leu Val Gly Trp Leu Val Asp Arg Gly Ile Thr Ser Glu Lys
225                 230                 235                 240

cag tgg atc cag gag gac cag gcc tcg tac atc tcc ttc aac gcc gct       768
Gln Trp Ile Gln Glu Asp Gln Ala Ser Tyr Ile Ser Phe Asn Ala Ala
                245                 250                 255

tcc aac tcg cgg tcc cag atc aag gcc gct ctg gac aat gcc ggc aag       816
Ser Asn Ser Arg Ser Gln Ile Lys Ala Ala Leu Asp Asn Ala Gly Lys
                260                 265                 270

atc atg gcg ctg acc aaa tcc gcg ccc gac tac ctg gta ggc ccc gct       864
Ile Met Ala Leu Thr Lys Ser Ala Pro Asp Tyr Leu Val Gly Pro Ala
        275                 280                 285

ccg ccc gcg gac att aaa acc aac cgc atc tac cgc atc ctg gag ctg       912
Pro Pro Ala Asp Ile Lys Thr Asn Arg Ile Tyr Arg Ile Leu Glu Leu
        290                 295                 300

aac ggc tac gaa cct gcc tac gcc ggc tcc gtc ttt ctc ggc tgg gcc       960
Asn Gly Tyr Glu Pro Ala Tyr Ala Gly Ser Val Phe Leu Gly Trp Ala
305                 310                 315                 320

cag aaa agg ttc ggg aag cgc aac acc atc tgg ctg ttt ggg ccg gcc      1008
Gln Lys Arg Phe Gly Lys Arg Asn Thr Ile Trp Leu Phe Gly Pro Ala
                325                 330                 335

acc acg ggc aag acc aac atc gcg gaa gcc atc gcc cac gcc gtg ccc      1056
Thr Thr Gly Lys Thr Asn Ile Ala Glu Ala Ile Ala His Ala Val Pro
        340                 345                 350
```

```
ttc tac ggc tgc gtc aac tgg acc aat gag aac ttt ccc ttc aat gat      1104
Phe Tyr Gly Cys Val Asn Trp Thr Asn Glu Asn Phe Pro Phe Asn Asp
        355             360             365

tgc gtc gac aag atg gtg atc tgg tgg gag gag ggc aag atg acg gcc      1152
Cys Val Asp Lys Met Val Ile Trp Trp Glu Glu Gly Lys Met Thr Ala
        370             375             380

aag gtc gtg gag tcc gcc aag gcc att ctc ggc ggc agc aag gtg cgc      1200
Lys Val Val Glu Ser Ala Lys Ala Ile Leu Gly Gly Ser Lys Val Arg
385             390             395             400

gtg gac caa aag tgc aag tcg tcc gcc cag atc gac ccc acc ccc gtg      1248
Val Asp Gln Lys Cys Lys Ser Ser Ala Gln Ile Asp Pro Thr Pro Val
            405             410             415

atc gtc acc tcc aac acc aac atg tgc gcc gtg att gac ggg aac agc      1296
Ile Val Thr Ser Asn Thr Asn Met Cys Ala Val Ile Asp Gly Asn Ser
            420             425             430

acc acc ttc gag cac cag cag ccg ttg cag gac cgg atg ttc aaa ttt      1344
Thr Thr Phe Glu His Gln Gln Pro Leu Gln Asp Arg Met Phe Lys Phe
        435             440             445

gaa ctc acc cgc cgt ctg gag cat gac ttt ggc aag gtg aca aag cag      1392
Glu Leu Thr Arg Arg Leu Glu His Asp Phe Gly Lys Val Thr Lys Gln
        450             455             460

gaa gtc aaa gag ttc ttc cgc tgg gcg cag gat cac gtg acc gag gtg      1440
Glu Val Lys Glu Phe Phe Arg Trp Ala Gln Asp His Val Thr Glu Val
465             470             475             480

gcg cat gag ttc tac gtc aga aag ggt gga gcc aac aaa aga ccc gcc      1488
Ala His Glu Phe Tyr Val Arg Lys Gly Gly Ala Asn Lys Arg Pro Ala
            485             490             495

ccc gat gac gcg gat aaa agc gag ccc aag cgg gcc tgc ccc tca gtc      1536
Pro Asp Asp Ala Asp Lys Ser Glu Pro Lys Arg Ala Cys Pro Ser Val
            500             505             510

gcg gat cca tcg acg tca gac gcg gaa gga gct ccg gtg gac ttt gcc      1584
Ala Asp Pro Ser Thr Ser Asp Ala Glu Gly Ala Pro Val Asp Phe Ala
            515             520             525

gac agg tac caa aac aaa tgt tct cgt cac gcg ggc atg ctt cag atg      1632
Asp Arg Tyr Gln Asn Lys Cys Ser Arg His Ala Gly Met Leu Gln Met
            530             535             540

ctg ttt ccc tgc aag aca tgc gag aga atg aat cag aat ttc aac att      1680
Leu Phe Pro Cys Lys Thr Cys Glu Arg Met Asn Gln Asn Phe Asn Ile
545             550             555             560

tgc ttc acg cac ggg acg aga gac tgt tca gag tgc ttc ccc ggc gtg      1728
Cys Phe Thr His Gly Thr Arg Asp Cys Ser Glu Cys Phe Pro Gly Val
            565             570             575

tca gaa tct caa ccg gtc gtc aga aag agg acg tat cgg aaa ctc tgt      1776
Ser Glu Ser Gln Pro Val Val Arg Lys Arg Thr Tyr Arg Lys Leu Cys
            580             585             590
```

```
gcc att cat cat ctg ctg ggg cgg gct ccc gag att gct tgc tcg gcc      1824
Ala Ile His His Leu Leu Gly Arg Ala Pro Glu Ile Ala Cys Ser Ala
        595                     600                 605

tgc gat ctg gtc aac gtg gac ctg gat gac tgt gtt tct gag caa taa      1872
Cys Asp Leu Val Asn Val Asp Leu Asp Asp Cys Val Ser Glu Gln
    610                     615                 620
```

<210> 5
<211> 623
<212> PRT
<213> AAV-1

<400> 5

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Met Pro Gly Phe Tyr Glu Ile Val Ile Lys Val Pro Ser Asp Leu Asp
1               5               10                  15

Glu His Leu Pro Gly Ile Ser Asp Ser Phe Val Ser Trp Val Ala Glu
            20              25                  30

Lys Glu Trp Glu Leu Pro Pro Asp Ser Asp Met Asp Leu Asn Leu Ile
        35              40                  45

Glu Gln Ala Pro Leu Thr Val Ala Glu Lys Leu Gln Arg Asp Phe Leu
    50              55                  60

Val Gln Trp Arg Arg Val Ser Lys Ala Pro Glu Ala Leu Phe Phe Val
65              70                  75                  80

Gln Phe Glu Lys Gly Glu Ser Tyr Phe His Leu His Ile Leu Val Glu
            85              90                  95

Thr Thr Gly Val Lys Ser Met Val Leu Gly Arg Phe Leu Ser Gln Ile
            100             105                 110

Arg Asp Lys Leu Val Gln Thr Ile Tyr Arg Gly Ile Glu Pro Thr Leu
        115             120                 125

Pro Asn Trp Phe Ala Val Thr Lys Thr Arg Asn Gly Ala Gly Gly Gly
    130             135             140

Asn Lys Val Val Asp Glu Cys Tyr Ile Pro Asn Tyr Leu Leu Pro Lys
145             150                 155                 160

Thr Gln Pro Glu Leu Gln Trp Ala Trp Thr Asn Met Glu Glu Tyr Ile
            165             170                 175

Ser Ala Cys Leu Asn Leu Ala Glu Arg Lys Arg Leu Val Ala Gln His
        180             185                 190

Leu Thr His Val Ser Gln Thr Gln Glu Gln Asn Lys Glu Asn Leu Asn
        195             200                 205

Pro Asn Ser Asp Ala Pro Val Ile Arg Ser Lys Thr Ser Ala Arg Tyr
    210             215                 220

Met Glu Leu Val Gly Trp Leu Val Asp Arg Gly Ile Thr Ser Glu Lys
225                 230             235                 240
```

```
Gln Trp Ile Gln Glu Asp Gln Ala Ser Tyr Ile Ser Phe Asn Ala Ala
              245             250             255

Ser Asn Ser Arg Ser Gln Ile Lys Ala Ala Leu Asp Asn Ala Gly Lys
              260             265             270

Ile Met Ala Leu Thr Lys Ser Ala Pro Asp Tyr Leu Val Gly Pro Ala
          275             280             285

Pro Pro Ala Asp Ile Lys Thr Asn Arg Ile Tyr Arg Ile Leu Glu Leu
      290             295             300

Asn Gly Tyr Glu Pro Ala Tyr Ala Gly Ser Val Phe Leu Gly Trp Ala
305             310             315             320

Gln Lys Arg Phe Gly Lys Arg Asn Thr Ile Trp Leu Phe Gly Pro Ala
              325             330             335

Thr Thr Gly Lys Thr Asn Ile Ala Glu Ala Ile Ala His Ala Val Pro
              340             345             350

Phe Tyr Gly Cys Val Asn Trp Thr Asn Glu Asn Phe Pro Phe Asn Asp
          355             360             365

Cys Val Asp Lys Met Val Ile Trp Trp Glu Glu Gly Lys Met Thr Ala
      370             375             380

Lys Val Val Glu Ser Ala Lys Ala Ile Leu Gly Gly Ser Lys Val Arg
385             390             395             400

Val Asp Gln Lys Cys Lys Ser Ser Ala Gln Ile Asp Pro Thr Pro Val
              405             410             415

Ile Val Thr Ser Asn Thr Asn Met Cys Ala Val Ile Asp Gly Asn Ser
          420             425             430

Thr Thr Phe Glu His Gln Gln Pro Leu Gln Asp Arg Met Phe Lys Phe
          435             440             445

Glu Leu Thr Arg Arg Leu Glu His Asp Phe Gly Lys Val Thr Lys Gln
      450             455             460

Glu Val Lys Glu Phe Phe Arg Trp Ala Gln Asp His Val Thr Glu Val
465             470             475             480

Ala His Glu Phe Tyr Val Arg Lys Gly Gly Ala Asn Lys Arg Pro Ala
              485             490             495

Pro Asp Asp Ala Asp Lys Ser Glu Pro Lys Arg Ala Cys Pro Ser Val
          500             505             510

Ala Asp Pro Ser Thr Ser Asp Ala Glu Gly Ala Pro Val Asp Phe Ala
          515             520             525

Asp Arg Tyr Gln Asn Lys Cys Ser Arg His Ala Gly Met Leu Gln Met
      530             535             540

Leu Phe Pro Cys Lys Thr Cys Glu Arg Met Asn Gln Asn Phe Asn Ile
545             550             555             560
```

```
Cys Phe Thr His Gly Thr Arg Asp Cys Ser Glu Cys Phe Pro Gly Val
              565                   570               575

Ser Glu Ser Gln Pro Val Val Arg Lys Arg Thr Tyr Arg Lys Leu Cys
              580                   585               590

Ala Ile His His Leu Leu Gly Arg Ala Pro Glu Ile Ala Cys Ser Ala
          595                   600               605

Cys Asp Leu Val Asn Val Asp Leu Asp Asp Cys Val Ser Glu Gln
    610                   615               620
```

<210> 6
<211> 1641
<212> DNA
<213> AAV-1

<220>
<221> CDS
<222> (1)..(1638)
<223>

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 <400>  6
atg ccg ggc ttc tac gag atc gtg atc aag gtg ccg agc gac ctg gac      48
Met Pro Gly Phe Tyr Glu Ile Val Ile Lys Val Pro Ser Asp Leu Asp
1               5                   10                  15

gag cac ctg ccg ggc att tct gac tcg ttt gtg agc tgg gtg gcc gag      96
Glu His Leu Pro Gly Ile Ser Asp Ser Phe Val Ser Trp Val Ala Glu
            20                  25                  30

aag gaa tgg gag ctg ccc ccg gat tct gac atg gat ctg aat ctg att     144
Lys Glu Trp Glu Leu Pro Pro Asp Ser Asp Met Asp Leu Asn Leu Ile
        35                  40                  45

gag cag gca ccc ctg acc gtg gcc gag aag ctg cag cgc gac ttc ctg     192
Glu Gln Ala Pro Leu Thr Val Ala Glu Lys Leu Gln Arg Asp Phe Leu
    50                  55                  60

gtc caa tgg cgc cgc gtg agt aag gcc ccg gag gcc ctc ttc ttt gtt     240
Val Gln Trp Arg Arg Val Ser Lys Ala Pro Glu Ala Leu Phe Phe Val
65                  70                  75                  80

cag ttc gag aag ggc gag tcc tac ttc cac ctc cat att ctg gtg gag     288
Gln Phe Glu Lys Gly Glu Ser Tyr Phe His Leu His Ile Leu Val Glu
                85                  90                  95

acc acg ggg gtc aaa tcc atg gtg ctg ggc cgc ttc ctg agt cag att     336
Thr Thr Gly Val Lys Ser Met Val Leu Gly Arg Phe Leu Ser Gln Ile
            100                 105                 110

agg gac aag ctg gtg cag acc atc tac cgc ggg atc gag ccg acc ctg     384
Arg Asp Lys Leu Val Gln Thr Ile Tyr Arg Gly Ile Glu Pro Thr Leu
        115                 120                 125

ccc aac tgg ttc gcg gtg acc aag acg cgt aat ggc gcc gga ggg ggg     432
Pro Asn Trp Phe Ala Val Thr Lys Thr Arg Asn Gly Ala Gly Gly Gly
        130                 135                 140
```

```
aac aag gtg gtg gac gag tgc tac atc ccc aac tac ctc ctg ccc aag        480
Asn Lys Val Val Asp Glu Cys Tyr Ile Pro Asn Tyr Leu Leu Pro Lys
145             150             155             160

act cag ccc gag ctg cag tgg gcg tgg act aac atg gag gag tat ata        528
Thr Gln Pro Glu Leu Gln Trp Ala Trp Thr Asn Met Glu Glu Tyr Ile
                165             170             175

agc gcc tgt ttg aac ctg gcc gag cgc aaa cgg ctc gtg gcg cag cac        576
Ser Ala Cys Leu Asn Leu Ala Glu Arg Lys Arg Leu Val Ala Gln His
            180             185             190

ctg acc cac gtc agc cag acc cag gag cag aac aag gag aat ctg aac        624
Leu Thr His Val Ser Gln Thr Gln Glu Gln Asn Lys Glu Asn Leu Asn
            195             200             205

ccc aat tct gac gcg cct gtc atc cgg tca aaa acc tcc gcg cgc tac        672
Pro Asn Ser Asp Ala Pro Val Ile Arg Ser Lys Thr Ser Ala Arg Tyr
            210             215             220

atg gag ctg gtc ggg tgg ctg gtg gac cgg ggc atc acc tcc gag aag        720
Met Glu Leu Val Gly Trp Leu Val Asp Arg Gly Ile Thr Ser Glu Lys
225             230             235             240

cag tgg atc cag gag gac cag gcc tcg tac atc tcc ttc aac gcc gct        768
Gln Trp Ile Gln Glu Asp Gln Ala Ser Tyr Ile Ser Phe Asn Ala Ala
                245             250             255

tcc aac tcg cgg tcc cag atc aag gcc gct ctg gac aat gcc ggc aag        816
Ser Asn Ser Arg Ser Gln Ile Lys Ala Ala Leu Asp Asn Ala Gly Lys
            260             265             270

atc atg gcg ctg acc aaa tcc gcg ccc gac tac ctg gta ggc ccc gct        864
Ile Met Ala Leu Thr Lys Ser Ala Pro Asp Tyr Leu Val Gly Pro Ala
            275             280             285

ccg ccc gcg gac att aaa acc aac cgc atc tac cgc atc ctg gag ctg        912
Pro Pro Ala Asp Ile Lys Thr Asn Arg Ile Tyr Arg Ile Leu Glu Leu
            290             295             300

aac ggc tac gaa cct gcc tac gcc ggc tcc gtc ttt ctc ggc tgg gcc        960
Asn Gly Tyr Glu Pro Ala Tyr Ala Gly Ser Val Phe Leu Gly Trp Ala
305             310             315             320

cag aaa agg ttc ggg aag cgc aac acc atc tgg ctg ttt ggg ccg gcc       1008
Gln Lys Arg Phe Gly Lys Arg Asn Thr Ile Trp Leu Phe Gly Pro Ala
                325             330             335

acc acg ggc aag acc aac atc gcg gaa gcc atc gcc cac gcc gtg ccc       1056
Thr Thr Gly Lys Thr Asn Ile Ala Glu Ala Ile Ala His Ala Val Pro
            340             345             350

ttc tac ggc tgc gtc aac tgg acc aat gag aac ttt ccc ttc aat gat       1104
Phe Tyr Gly Cys Val Asn Trp Thr Asn Glu Asn Phe Pro Phe Asn Asp
            355             360             365

tgc gtc gac aag atg gtg atc tgg tgg gag gag ggc aag atg acg gcc       1152
Cys Val Asp Lys Met Val Ile Trp Trp Glu Glu Gly Lys Met Thr Ala
370             375             380
```

```
aag gtc gtg gag tcc gcc aag gcc att ctc ggc ggc agc aag gtg cgc    1200
Lys Val Val Glu Ser Ala Lys Ala Ile Leu Gly Gly Ser Lys Val Arg
385              390              395              400

gtg gac caa aag tgc aag tcg tcc gcc cag atc gac ccc acc ccc gtg    1248
Val Asp Gln Lys Cys Lys Ser Ser Ala Gln Ile Asp Pro Thr Pro Val
                 405              410              415

atc gtc acc tcc aac acc aac atg tgc gcc gtg att gac ggg aac agc    1296
Ile Val Thr Ser Asn Thr Asn Met Cys Ala Val Ile Asp Gly Asn Ser
             420              425              430

acc acc ttc gag cac cag cag ccg ttg cag gac cgg atg ttc aaa ttt    1344
Thr Thr Phe Glu His Gln Gln Pro Leu Gln Asp Arg Met Phe Lys Phe
         435              440              445

gaa ctc acc cgc cgt ctg gag cat gac ttt ggc aag gtg aca aag cag    1392
Glu Leu Thr Arg Arg Leu Glu His Asp Phe Gly Lys Val Thr Lys Gln
     450              455              460

gaa gtc aaa gag ttc ttc cgc tgg gcg cag gat cac gtg acc gag gtg    1440
Glu Val Lys Glu Phe Phe Arg Trp Ala Gln Asp His Val Thr Glu Val
465              470              475              480

gcg cat gag ttc tac gtc aga aag ggt gga gcc aac aaa aga ccc gcc    1488
Ala His Glu Phe Tyr Val Arg Lys Gly Gly Ala Asn Lys Arg Pro Ala
                 485              490              495

ccc gat gac gcg gat aaa agc gag ccc aag cgg gcc tgc ccc tca gtc    1536
Pro Asp Asp Ala Asp Lys Ser Glu Pro Lys Arg Ala Cys Pro Ser Val
             500              505              510

gcg gat cca tcg acg tca gac gcg gaa gga gct ccg gtg gac ttt gcc    1584
Ala Asp Pro Ser Thr Ser Asp Ala Glu Gly Ala Pro Val Asp Phe Ala
             515              520              525

gac agg tat ggc tgc cga tgg tta tct tcc aga ttg gct cga gga caa    1632
Asp Arg Tyr Gly Cys Arg Trp Leu Ser Ser Arg Leu Ala Arg Gly Gln
         530              535              540

cct ctc tga                                                        1641
Pro Leu
545


<210>  7
<211>  546
<212>  PRT
<213>  AAV-1

<400>  7
Met Pro Gly Phe Tyr Glu Ile Val Ile Lys Val Pro Ser Asp Leu Asp
1              5              10             15

Glu His Leu Pro Gly Ile Ser Asp Ser Phe Val Ser Trp Val Ala Glu
             20             25             30

Lys Glu Trp Glu Leu Pro Pro Asp Ser Asp Met Asp Leu Asn Leu Ile
         35             40             45
```

```
Glu Gln Ala Pro Leu Thr Val Ala Glu Lys Leu Gln Arg Asp Phe Leu
50              55              60

Val Gln Trp Arg Arg Val Ser Lys Ala Pro Glu Ala Leu Phe Phe Val
65          70              75              80

Gln Phe Glu Lys Gly Glu Ser Tyr Phe His Leu His Ile Leu Val Glu
            85              90              95

Thr Thr Gly Val Lys Ser Met Val Leu Gly Arg Phe Leu Ser Gln Ile
            100             105             110

Arg Asp Lys Leu Val Gln Thr Ile Tyr Arg Gly Ile Glu Pro Thr Leu
        115             120             125

Pro Asn Trp Phe Ala Val Thr Lys Thr Arg Asn Gly Ala Gly Gly Gly
    130             135             140

Asn Lys Val Val Asp Glu Cys Tyr Ile Pro Asn Tyr Leu Leu Pro Lys
145             150             155             160

Thr Gln Pro Glu Leu Gln Trp Ala Trp Thr Asn Met Glu Glu Tyr Ile
            165             170             175

Ser Ala Cys Leu Asn Leu Ala Glu Arg Lys Arg Leu Val Ala Gln His
            180             185             190

Leu Thr His Val Ser Gln Thr Gln Glu Gln Asn Lys Glu Asn Leu Asn
        195             200             205

Pro Asn Ser Asp Ala Pro Val Ile Arg Ser Lys Thr Ser Ala Arg Tyr
    210             215             220

Met Glu Leu Val Gly Trp Leu Val Asp Arg Gly Ile Thr Ser Glu Lys
225             230             235             240

Gln Trp Ile Gln Glu Asp Gln Ala Ser Tyr Ile Ser Phe Asn Ala Ala
            245             250             255

Ser Asn Ser Arg Ser Gln Ile Lys Ala Ala Leu Asp Asn Ala Gly Lys
        260             265             270

Ile Met Ala Leu Thr Lys Ser Ala Pro Asp Tyr Leu Val Gly Pro Ala
    275             280             285

Pro Pro Ala Asp Ile Lys Thr Asn Arg Ile Tyr Arg Ile Leu Glu Leu
    290             295             300

Asn Gly Tyr Glu Pro Ala Tyr Ala Gly Ser Val Phe Leu Gly Trp Ala
305             310             315             320

Gln Lys Arg Phe Gly Lys Arg Asn Thr Ile Trp Leu Phe Gly Pro Ala
            325             330             335

Thr Thr Gly Lys Thr Asn Ile Ala Glu Ala Ile Ala His Ala Val Pro
        340             345             350

Phe Tyr Gly Cys Val Asn Trp Thr Asn Glu Asn Phe Pro Phe Asn Asp
        355             360             365
```

```
Cys Val Asp Lys Met Val Ile Trp Trp Glu Glu Gly Lys Met Thr Ala
    370             375             380
Lys Val Val Glu Ser Ala Lys Ala Ile Leu Gly Gly Ser Lys Val Arg
385             390             395             400
Val Asp Gln Lys Cys Lys Ser Ser Ala Gln Ile Asp Pro Thr Pro Val
                405             410             415
Ile Val Thr Ser Asn Thr Asn Met Cys Ala Val Ile Asp Gly Asn Ser
            420             425             430
Thr Thr Phe Glu His Gln Gln Pro Leu Gln Asp Arg Met Phe Lys Phe
        435             440             445
Glu Leu Thr Arg Arg Leu Glu His Asp Phe Gly Lys Val Thr Lys Gln
    450             455             460
Glu Val Lys Glu Phe Phe Arg Trp Ala Gln Asp His Val Thr Glu Val
465             470             475             480
Ala His Glu Phe Tyr Val Arg Lys Gly Gly Ala Asn Lys Arg Pro Ala
                485             490             495
Pro Asp Asp Ala Asp Lys Ser Glu Pro Lys Arg Ala Cys Pro Ser Val
            500             505             510
Ala Asp Pro Ser Thr Ser Asp Ala Glu Gly Ala Pro Val Asp Phe Ala
        515             520             525
Asp Arg Tyr Gly Cys Arg Trp Leu Ser Ser Arg Leu Ala Arg Gly Gln
    530             535             540
Pro Leu
545


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<212>   DNA
<213>   AAV-1

<220>
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<222>   (1)..(1197)
<223>

 <400>   8
atg gag ctg gtc ggg tgg ctg gtg gac cgg ggc atc acc tcc gag aag      48
Met Glu Leu Val Gly Trp Leu Val Asp Arg Gly Ile Thr Ser Glu Lys
1               5               10              15
cag tgg atc cag gag gac cag gcc tcg tac atc tcc ttc aac gcc gct      96
Gln Trp Ile Gln Glu Asp Gln Ala Ser Tyr Ile Ser Phe Asn Ala Ala
                20              25              30
tcc aac tcg cgg tcc cag atc aag gcc gct ctg gac aat gcc ggc aag     144
Ser Asn Ser Arg Ser Gln Ile Lys Ala Ala Leu Asp Asn Ala Gly Lys
            35              40              45
```

```
atc atg gcg ctg acc aaa tcc gcg ccc gac tac ctg gta ggc ccc gct    192
Ile Met Ala Leu Thr Lys Ser Ala Pro Asp Tyr Leu Val Gly Pro Ala
    50              55                  60

ccg ccc gcg gac att aaa acc aac cgc atc tac cgc atc ctg gag ctg    240
Pro Pro Ala Asp Ile Lys Thr Asn Arg Ile Tyr Arg Ile Leu Glu Leu
65              70                  75                  80

aac ggc tac gaa cct gcc tac gcc ggc tcc gtc ttt ctc ggc tgg gcc    288
Asn Gly Tyr Glu Pro Ala Tyr Ala Gly Ser Val Phe Leu Gly Trp Ala
                85                  90                  95

cag aaa agg ttc ggg aag cgc aac acc atc tgg ctg ttt ggg ccg gcc    336
Gln Lys Arg Phe Gly Lys Arg Asn Thr Ile Trp Leu Phe Gly Pro Ala
                100                 105                 110

acc acg ggc aag acc aac atc gcg gaa gcc atc gcc cac gcc gtg ccc    384
Thr Thr Gly Lys Thr Asn Ile Ala Glu Ala Ile Ala His Ala Val Pro
            115                 120                 125

ttc tac ggc tgc gtc aac tgg acc aat gag aac ttt ccc ttc aat gat    432
Phe Tyr Gly Cys Val Asn Trp Thr Asn Glu Asn Phe Pro Phe Asn Asp
        130                 135                 140

tgc gtc gac aag atg gtg atc tgg tgg gag gag ggc aag atg acg gcc    480
Cys Val Asp Lys Met Val Ile Trp Trp Glu Glu Gly Lys Met Thr Ala
145                 150                 155                 160

aag gtc gtg gag tcc gcc aag gcc att ctc ggc ggc agc aag gtg cgc    528
Lys Val Val Glu Ser Ala Lys Ala Ile Leu Gly Gly Ser Lys Val Arg
                165                 170                 175

gtg gac caa aag tgc aag tcg tcc gcc cag atc gac ccc acc ccc gtg    576
Val Asp Gln Lys Cys Lys Ser Ser Ala Gln Ile Asp Pro Thr Pro Val
            180                 185                 190

atc gtc acc tcc aac acc aac atg tgc gcc gtg att gac ggg aac agc    624
Ile Val Thr Ser Asn Thr Asn Met Cys Ala Val Ile Asp Gly Asn Ser
        195                 200                 205

acc acc ttc gag cac cag cag ccg ttg cag gac cgg atg ttc aaa ttt    672
Thr Thr Phe Glu His Gln Gln Pro Leu Gln Asp Arg Met Phe Lys Phe
210                 215                 220

gaa ctc acc cgc cgt ctg gag cat gac ttt ggc aag gtg aca aag cag    720
Glu Leu Thr Arg Arg Leu Glu His Asp Phe Gly Lys Val Thr Lys Gln
225                 230                 235                 240

gaa gtc aaa gag ttc ttc cgc tgg gcg cag gat cac gtg acc gag gtg    768
Glu Val Lys Glu Phe Phe Arg Trp Ala Gln Asp His Val Thr Glu Val
                245                 250                 255

gcg cat gag ttc tac gtc aga aag ggt gga gcc aac aaa aga ccc gcc    816
Ala His Glu Phe Tyr Val Arg Lys Gly Gly Ala Asn Lys Arg Pro Ala
                260                 265                 270

ccc gat gac gcg gat aaa agc gag ccc aag cgg gcc tgc ccc tca gtc    864
Pro Asp Asp Ala Asp Lys Ser Glu Pro Lys Arg Ala Cys Pro Ser Val
        275                 280                 285
```

```
gcg gat cca tcg acg tca gac gcg gaa gga gct ccg gtg gac ttt gcc        912
Ala Asp Pro Ser Thr Ser Asp Ala Glu Gly Ala Pro Val Asp Phe Ala
    290             295             300

gac agg tac caa aac aaa tgt tct cgt cac gcg ggc atg ctt cag atg        960
Asp Arg Tyr Gln Asn Lys Cys Ser Arg His Ala Gly Met Leu Gln Met
305             310             315             320

ctg ttt ccc tgc aag aca tgc gag aga atg aat cag aat ttc aac att       1008
Leu Phe Pro Cys Lys Thr Cys Glu Arg Met Asn Gln Asn Phe Asn Ile
                325             330             335

tgc ttc acg cac ggg acg aga gac tgt tca gag tgc ttc ccc ggc gtg       1056
Cys Phe Thr His Gly Thr Arg Asp Cys Ser Glu Cys Phe Pro Gly Val
            340             345             350

tca gaa tct caa ccg gtc gtc aga aag agg acg tat cgg aaa ctc tgt       1104
Ser Glu Ser Gln Pro Val Val Arg Lys Arg Thr Tyr Arg Lys Leu Cys
            355             360             365

gcc att cat cat ctg ctg ggg cgg gct ccc gag att gct tgc tcg gcc       1152
Ala Ile His His Leu Leu Gly Arg Ala Pro Glu Ile Ala Cys Ser Ala
    370             375             380

tgc gat ctg gtc aac gtg gac ctg gat gac tgt gtt tct gag caa taa       1200
Cys Asp Leu Val Asn Val Asp Leu Asp Asp Cys Val Ser Glu Gln
385             390             395


<210>   9
<211>   399
<212>   PRT
<213>   AAV-1

<400>   9
Met Glu Leu Val Gly Trp Leu Val Asp Arg Gly Ile Thr Ser Glu Lys
1               5                   10                  15

Gln Trp Ile Gln Glu Asp Gln Ala Ser Tyr Ile Ser Phe Asn Ala Ala
            20                  25                  30

Ser Asn Ser Arg Ser Gln Ile Lys Ala Ala Leu Asp Asn Ala Gly Lys
            35                  40                  45

Ile Met Ala Leu Thr Lys Ser Ala Pro Asp Tyr Leu Val Gly Pro Ala
    50                  55                  60

Pro Pro Ala Asp Ile Lys Thr Asn Arg Ile Tyr Arg Ile Leu Glu Leu
65                  70                  75                  80

Asn Gly Tyr Glu Pro Ala Tyr Ala Gly Ser Val Phe Leu Gly Trp Ala
                85                  90                  95

Gln Lys Arg Phe Gly Lys Arg Asn Thr Ile Trp Leu Phe Gly Pro Ala
            100                 105                 110

Thr Thr Gly Lys Thr Asn Ile Ala Glu Ala Ile Ala His Ala Val Pro
            115                 120                 125

Phe Tyr Gly Cys Val Asn Trp Thr Asn Glu Asn Phe Pro Phe Asn Asp
```

```
        130                    135                    140

Cys Val Asp Lys Met Val Ile Trp Trp Glu Glu Gly Lys Met Thr Ala
145                 150                 155                 160

Lys Val Val Glu Ser Ala Lys Ala Ile Leu Gly Gly Ser Lys Val Arg
                165                 170                 175

Val Asp Gln Lys Cys Lys Ser Ser Ala Gln Ile Asp Pro Thr Pro Val
            180                 185                 190

Ile Val Thr Ser Asn Thr Asn Met Cys Ala Val Ile Asp Gly Asn Ser
        195                 200                 205

Thr Thr Phe Glu His Gln Gln Pro Leu Gln Asp Arg Met Phe Lys Phe
    210                 215                 220

Glu Leu Thr Arg Arg Leu Glu His Asp Phe Gly Lys Val Thr Lys Gln
225                 230                 235                 240

Glu Val Lys Glu Phe Phe Arg Trp Ala Gln Asp His Val Thr Glu Val
                245                 250                 255

Ala His Glu Phe Tyr Val Arg Lys Gly Gly Ala Asn Lys Arg Pro Ala
            260                 265                 270

Pro Asp Asp Ala Asp Lys Ser Glu Pro Lys Arg Ala Cys Pro Ser Val
    275                 280                 285

Ala Asp Pro Ser Thr Ser Asp Ala Glu Gly Ala Pro Val Asp Phe Ala
    290                 295                 300

Asp Arg Tyr Gln Asn Lys Cys Ser Arg His Ala Gly Met Leu Gln Met
305                 310                 315                 320

Leu Phe Pro Cys Lys Thr Cys Glu Arg Met Asn Gln Asn Phe Asn Ile
                325                 330                 335

Cys Phe Thr His Gly Thr Arg Asp Cys Ser Glu Cys Phe Pro Gly Val
            340                 345                 350

Ser Glu Ser Gln Pro Val Val Arg Lys Arg Thr Tyr Arg Lys Leu Cys
        355                 360                 365

Ala Ile His His Leu Leu Gly Arg Ala Pro Glu Ile Ala Cys Ser Ala
    370                 375                 380

Cys Asp Leu Val Asn Val Asp Leu Asp Asp Cys Val Ser Glu Gln
385                 390                 395
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<210> 10
<211> 969
<212> DNA
<213> AAV-1

<220>
<221> CDS
<222> (1)..(966)
<223>

<220>
<221> misc_feature
<222> (943)..(944)
<223> minor splice site

<400> 10

atg	gag	ctg	gtc	ggg	tgg	ctg	gtg	gac	cgg	ggc	atc	acc	tcc	gag	aag	48
Met	Glu	Leu	Val	Gly	Trp	Leu	Val	Asp	Arg	Gly	Ile	Thr	Ser	Glu	Lys	
1				5					10					15		

cag	tgg	atc	cag	gag	gac	cag	gcc	tcg	tac	atc	tcc	ttc	aac	gcc	gct	96
Gln	Trp	Ile	Gln	Glu	Asp	Gln	Ala	Ser	Tyr	Ile	Ser	Phe	Asn	Ala	Ala	
			20					25					30			

tcc	aac	tcg	cgg	tcc	cag	atc	aag	gcc	gct	ctg	gac	aat	gcc	ggc	aag	144
Ser	Asn	Ser	Arg	Ser	Gln	Ile	Lys	Ala	Ala	Leu	Asp	Asn	Ala	Gly	Lys	
		35					40					45				

atc	atg	gcg	ctg	acc	aaa	tcc	gcg	ccc	gac	tac	ctg	gta	ggc	ccc	gct	192
Ile	Met	Ala	Leu	Thr	Lys	Ser	Ala	Pro	Asp	Tyr	Leu	Val	Gly	Pro	Ala	
	50					55					60					

ccg	ccc	gcg	gac	att	aaa	acc	aac	cgc	atc	tac	cgc	atc	ctg	gag	ctg	240
Pro	Pro	Ala	Asp	Ile	Lys	Thr	Asn	Arg	Ile	Tyr	Arg	Ile	Leu	Glu	Leu	
65					70					75					80	

aac	ggc	tac	gaa	cct	gcc	tac	gcc	ggc	tcc	gtc	ttt	ctc	ggc	tgg	gcc	288
Asn	Gly	Tyr	Glu	Pro	Ala	Tyr	Ala	Gly	Ser	Val	Phe	Leu	Gly	Trp	Ala	
				85					90					95		

cag	aaa	agg	ttc	ggg	aag	cgc	aac	acc	atc	tgg	ctg	ttt	ggg	ccg	gcc	336
Gln	Lys	Arg	Phe	Gly	Lys	Arg	Asn	Thr	Ile	Trp	Leu	Phe	Gly	Pro	Ala	
			100					105					110			

acc	acg	ggc	aag	acc	aac	atc	gcg	gaa	gcc	atc	gcc	cac	gcc	gtg	ccc	384
Thr	Thr	Gly	Lys	Thr	Asn	Ile	Ala	Glu	Ala	Ile	Ala	His	Ala	Val	Pro	
		115					120					125				

ttc	tac	ggc	tgc	gtc	aac	tgg	acc	aat	gag	aac	ttt	ccc	ttc	aat	gat	432
Phe	Tyr	Gly	Cys	Val	Asn	Trp	Thr	Asn	Glu	Asn	Phe	Pro	Phe	Asn	Asp	
	130					135					140					

tgc	gtc	gac	aag	atg	gtg	atc	tgg	tgg	gag	gag	ggc	aag	atg	acg	gcc	480
Cys	Val	Asp	Lys	Met	Val	Ile	Trp	Trp	Glu	Glu	Gly	Lys	Met	Thr	Ala	
145				150					155					160		

aag	gtc	gtg	gag	tcc	gcc	aag	gcc	att	ctc	ggc	ggc	agc	aag	gtg	cgc	528
Lys	Val	Val	Glu	Ser	Ala	Lys	Ala	Ile	Leu	Gly	Gly	Ser	Lys	Val	Arg	
				165					170					175		

gtg	gac	caa	aag	tgc	aag	tcg	tcc	gcc	cag	atc	gac	ccc	acc	ccc	gtg	576
Val	Asp	Gln	Lys	Cys	Lys	Ser	Ser	Ala	Gln	Ile	Asp	Pro	Thr	Pro	Val	
		180					185					190				

atc	gtc	acc	tcc	aac	acc	aac	atg	tgc	gcc	gtg	att	gac	ggg	aac	agc	624
Ile	Val	Thr	Ser	Asn	Thr	Asn	Met	Cys	Ala	Val	Ile	Asp	Gly	Asn	Ser	
	195					200					205					

| acc | acc | ttc | gag | cac | cag | cag | ccg | ttg | cag | gac | cgg | atg | ttc | aaa | ttt | 672 |

```
Thr Thr Phe Glu His Gln Gln Pro Leu Gln Asp Arg Met Phe Lys Phe
    210                 215                 220

gaa ctc acc cgc cgt ctg gag cat gac ttt ggc aag gtg aca aag cag      720
Glu Leu Thr Arg Arg Leu Glu His Asp Phe Gly Lys Val Thr Lys Gln
225                     230                 235                 240

gaa gtc aaa gag ttc ttc cgc tgg gcg cag gat cac gtg acc gag gtg      768
Glu Val Lys Glu Phe Phe Arg Trp Ala Gln Asp His Val Thr Glu Val
                245                 250                 255

gcg cat gag ttc tac gtc aga aag ggt gga gcc aac aaa aga ccc gcc      816
Ala His Glu Phe Tyr Val Arg Lys Gly Gly Ala Asn Lys Arg Pro Ala
                260                 265                 270

ccc gat gac gcg gat aaa agc gag ccc aag cgg gcc tgc ccc tca gtc      864
Pro Asp Asp Ala Asp Lys Ser Glu Pro Lys Arg Ala Cys Pro Ser Val
                275                 280                 285

gcg gat cca tcg acg tca gac gcg gaa gga gct ccg gtg gac ttt gcc      912
Ala Asp Pro Ser Thr Ser Asp Ala Glu Gly Ala Pro Val Asp Phe Ala
                290                 295                 300

gac agg tat ggc tgc cga tgg tta tct tcc aga ttg gct cga gga caa      960
Asp Arg Tyr Gly Cys Arg Trp Leu Ser Ser Arg Leu Ala Arg Gly Gln
305                     310                 315                 320

cct ctc tga                                                          969
Pro Leu
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<210>  11
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<212>  PRT
<213>  AAV-1

<220>
<221>  misc_feature
<222>  (943)..(944)
<223>  minor splice site

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1               5                   10                  15

Gln Trp Ile Gln Glu Asp Gln Ala Ser Tyr Ile Ser Phe Asn Ala Ala
            20                  25                  30

Ser Asn Ser Arg Ser Gln Ile Lys Ala Ala Leu Asp Asn Ala Gly Lys
            35                  40                  45

Ile Met Ala Leu Thr Lys Ser Ala Pro Asp Tyr Leu Val Gly Pro Ala
        50                  55                  60

Pro Pro Ala Asp Ile Lys Thr Asn Arg Ile Tyr Arg Ile Leu Glu Leu
65                  70                  75                  80

Asn Gly Tyr Glu Pro Ala Tyr Ala Gly Ser Val Phe Leu Gly Trp Ala
                85                  90                  95
```

```
Gln Lys Arg Phe Gly Lys Arg Asn Thr Ile Trp Leu Phe Gly Pro Ala
            100                 105             110
Thr Thr Gly Lys Thr Asn Ile Ala Glu Ala Ile Ala His Ala Val Pro
            115                 120             125
Phe Tyr Gly Cys Val Asn Trp Thr Asn Glu Asn Phe Pro Phe Asn Asp
        130                 135             140
Cys Val Asp Lys Met Val Ile Trp Trp Glu Glu Gly Lys Met Thr Ala
145             150                 155                 160
Lys Val Val Glu Ser Ala Lys Ala Ile Leu Gly Gly Ser Lys Val Arg
                165                 170                 175
Val Asp Gln Lys Cys Lys Ser Ser Ala Gln Ile Asp Pro Thr Pro Val
            180                 185             190
Ile Val Thr Ser Asn Thr Asn Met Cys Ala Val Ile Asp Gly Asn Ser
            195                 200             205
Thr Thr Phe Glu His Gln Gln Pro Leu Gln Asp Arg Met Phe Lys Phe
    210                 215             220
Glu Leu Thr Arg Arg Leu Glu His Asp Phe Gly Lys Val Thr Lys Gln
225                 230                 235                 240
Glu Val Lys Glu Phe Phe Arg Trp Ala Gln Asp His Val Thr Glu Val
                245                 250             255
Ala His Glu Phe Tyr Val Arg Lys Gly Gly Ala Asn Lys Arg Pro Ala
            260                 265             270
Pro Asp Asp Ala Asp Lys Ser Glu Pro Lys Arg Ala Cys Pro Ser Val
        275                 280             285
Ala Asp Pro Ser Thr Ser Asp Ala Glu Gly Ala Pro Val Asp Phe Ala
    290                 295             300
Asp Arg Tyr Gly Cys Arg Trp Leu Ser Ser Arg Leu Ala Arg Gly Gln
305                 310             315             320
Pro Leu


<210>  12
<211>  2211
<212>  DNA
<213>  AAV-1

<220>
<221>  CDS
<222>  (1)..(2208)
<223>

<400>  12
atg gct gcc gat ggt tat ctt cca gat tgg ctc gag gac aac ctc tct      48
Met Ala Ala Asp Gly Tyr Leu Pro Asp Trp Leu Glu Asp Asn Leu Ser
```

```
 1                    5                        10                           15

gag ggc att cgc gag tgg tgg gac ttg aaa cct gga gcc ccg aag ccc          96
Glu Gly Ile Arg Glu Trp Trp Asp Leu Lys Pro Gly Ala Pro Lys Pro
            20              25                  30

aaa gcc aac cag caa aag cag gac gac ggc cgg ggt ctg gtg ctt cct         144
Lys Ala Asn Gln Gln Lys Gln Asp Asp Gly Arg Gly Leu Val Leu Pro
            35              40                  45

ggc tac aag tac ctc gga ccc ttc aac gga ctc gac aag ggg gag ccc         192
Gly Tyr Lys Tyr Leu Gly Pro Phe Asn Gly Leu Asp Lys Gly Glu Pro
    50              55                  60

gtc aac gcg gcg gac gca gcg gcc ctc gag cac gac aag gcc tac gac         240
Val Asn Ala Ala Asp Ala Ala Ala Leu Glu His Asp Lys Ala Tyr Asp
65                  70                  75                  80

cag cag ctc aaa gcg ggt gac aat ccg tac ctg cgg tat aac cac gcc         288
Gln Gln Leu Lys Ala Gly Asp Asn Pro Tyr Leu Arg Tyr Asn His Ala
                85                  90                  95

gac gcc gag ttt cag gag cgt ctg caa gaa gat acg tct ttt ggg ggc         336
Asp Ala Glu Phe Gln Glu Arg Leu Gln Glu Asp Thr Ser Phe Gly Gly
            100                 105                 110

aac ctc ggg cga gca gtc ttc cag gcc aag aag cgg gtt ctc gaa cct         384
Asn Leu Gly Arg Ala Val Phe Gln Ala Lys Lys Arg Val Leu Glu Pro
            115                 120                 125

ctc ggt ctg gtt gag gaa ggc gct aag acg gct cct gga aag aaa cgt         432
Leu Gly Leu Val Glu Glu Gly Ala Lys Thr Ala Pro Gly Lys Lys Arg
    130                 135                 140

ccg gta gag cag tcg cca caa gag cca gac tcc tcc tcg ggc atc ggc         480
Pro Val Glu Gln Ser Pro Gln Glu Pro Asp Ser Ser Ser Gly Ile Gly
145                 150                 155                 160

aag aca ggc cag cag ccc gct aaa aag aga ctc aat ttt ggt cag act         528
Lys Thr Gly Gln Gln Pro Ala Lys Lys Arg Leu Asn Phe Gly Gln Thr
                165                 170                 175

ggc gac tca gag tca gtc ccc gat cca caa cct ctc gga gaa cct cca         576
Gly Asp Ser Glu Ser Val Pro Asp Pro Gln Pro Leu Gly Glu Pro Pro
            180                 185                 190

gca acc ccc gct gct gtg gga cct act aca atg gct tca ggc ggt ggc         624
Ala Thr Pro Ala Ala Val Gly Pro Thr Thr Met Ala Ser Gly Gly Gly
            195                 200                 205

gca cca atg gca gac aat aac gaa ggc gcc gac gga gtg ggt aat gcc         672
Ala Pro Met Ala Asp Asn Asn Glu Gly Ala Asp Gly Val Gly Asn Ala
    210                 215                 220

tca gga aat tgg cat tgc gat tcc aca tgg ctg ggc gac aga gtc atc         720
Ser Gly Asn Trp His Cys Asp Ser Thr Trp Leu Gly Asp Arg Val Ile
225                 230                 235                 240

acc acc agc acc cgc acc tgg gcc ttg ccc acc tac aat aac cac ctc         768
Thr Thr Ser Thr Arg Thr Trp Ala Leu Pro Thr Tyr Asn Asn His Leu
```

```
tac aag caa atc tcc agt gct tca acg ggg gcc agc aac gac aac cac     816
Tyr Lys Gln Ile Ser Ser Ala Ser Thr Gly Ala Ser Asn Asp Asn His
            260             265             270

tac ttc ggc tac agc acc ccc tgg ggg tat ttt gat ttc aac aga ttc     864
Tyr Phe Gly Tyr Ser Thr Pro Trp Gly Tyr Phe Asp Phe Asn Arg Phe
        275             280             285

cac tgc cac ttt tca cca cgt gac tgg cag cga ctc atc aac aac aat     912
His Cys His Phe Ser Pro Arg Asp Trp Gln Arg Leu Ile Asn Asn Asn
    290             295             300

tgg gga ttc cgg ccc aag aga ctc aac ttc aaa ctc ttc aac atc caa     960
Trp Gly Phe Arg Pro Lys Arg Leu Asn Phe Lys Leu Phe Asn Ile Gln
305             310             315             320

gtc aag gag gtc acg acg aat gat ggc gtc aca acc atc gct aat aac    1008
Val Lys Glu Val Thr Thr Asn Asp Gly Val Thr Thr Ile Ala Asn Asn
            325             330             335

ctt acc agc acg gtt caa gtc ttc tcg gac tcg gag tac cag ctt ccg    1056
Leu Thr Ser Thr Val Gln Val Phe Ser Asp Ser Glu Tyr Gln Leu Pro
            340             345             350

tac gtc ctc ggc tct gcg cac cag ggc tgc ctc cct ccg ttc ccg gcg    1104
Tyr Val Leu Gly Ser Ala His Gln Gly Cys Leu Pro Pro Phe Pro Ala
            355             360             365

gac gtg ttc atg att ccg caa tac ggc tac ctg acg ctc aac aat ggc    1152
Asp Val Phe Met Ile Pro Gln Tyr Gly Tyr Leu Thr Leu Asn Asn Gly
    370             375             380

agc caa gcc gtg gga cgt tca tcc ttt tac tgc ctg gaa tat ttc cct    1200
Ser Gln Ala Val Gly Arg Ser Ser Phe Tyr Cys Leu Glu Tyr Phe Pro
385             390             395             400

tct cag atg ctg aga acg ggc aac aac ttt acc ttc agc tac acc ttt    1248
Ser Gln Met Leu Arg Thr Gly Asn Asn Phe Thr Phe Ser Tyr Thr Phe
            405             410             415

gag gaa gtg cct ttc cac agc agc tac gcg cac agc cag agc ctg gac    1296
Glu Glu Val Pro Phe His Ser Ser Tyr Ala His Ser Gln Ser Leu Asp
            420             425             430

cgg ctg atg aat cct ctc atc gac caa tac ctg tat tac ctg aac aga    1344
Arg Leu Met Asn Pro Leu Ile Asp Gln Tyr Leu Tyr Tyr Leu Asn Arg
            435             440             445

act caa aat cag tcc gga agt gcc caa aac aag gac ttg ctg ttt agc    1392
Thr Gln Asn Gln Ser Gly Ser Ala Gln Asn Lys Asp Leu Leu Phe Ser
    450             455             460

cgt ggg tct cca gct ggc atg tct gtt cag ccc aaa aac tgg cta cct    1440
Arg Gly Ser Pro Ala Gly Met Ser Val Gln Pro Lys Asn Trp Leu Pro
465             470             475             480

gga ccc tgt tat cgg cag cag cgc gtt tct aaa aca aaa aca gac aac    1488
Gly Pro Cys Tyr Arg Gln Gln Arg Val Ser Lys Thr Lys Thr Asp Asn
```

```
                  485                      490                      495

aac aac agc aat ttt acc tgg act ggt gct tca aaa tat aac ctc aat        1536
Asn Asn Ser Asn Phe Thr Trp Thr Gly Ala Ser Lys Tyr Asn Leu Asn
            500                      505                  510

ggg cgt gaa tcc atc atc aac cct ggc act gct atg gcc tca cac aaa        1584
Gly Arg Glu Ser Ile Ile Asn Pro Gly Thr Ala Met Ala Ser His Lys
        515                      520                  525

gac gac gaa gac aag ttc ttt ccc atg agc ggt gtc atg att ttt gga        1632
Asp Asp Glu Asp Lys Phe Phe Pro Met Ser Gly Val Met Ile Phe Gly
        530                      535                  540

aaa gag agc gcc gga gct tca aac act gca ttg gac aat gtc atg att        1680
Lys Glu Ser Ala Gly Ala Ser Asn Thr Ala Leu Asp Asn Val Met Ile
545                      550                  555                  560

aca gac gaa gag gaa att aaa gcc act aac cct gtg gcc acc gaa aga        1728
Thr Asp Glu Glu Glu Ile Lys Ala Thr Asn Pro Val Ala Thr Glu Arg
            565                      570                  575

ttt ggg acc gtg gca gtc aat ttc cag agc agc agc aca gac cct gcg        1776
Phe Gly Thr Val Ala Val Asn Phe Gln Ser Ser Ser Thr Asp Pro Ala
            580                      585                  590

acc gga gat gtg cat gct atg gga gca tta cct ggc atg gtg tgg caa        1824
Thr Gly Asp Val His Ala Met Gly Ala Leu Pro Gly Met Val Trp Gln
            595                      600                  605

gat aga gac gtg tac ctg cag ggt ccc att tgg gcc aaa att cct cac        1872
Asp Arg Asp Val Tyr Leu Gln Gly Pro Ile Trp Ala Lys Ile Pro His
        610                      615                  620

aca gat gga cac ttt cac ccg tct cct ctt atg ggc ggc ttt gga ctc        1920
Thr Asp Gly His Phe His Pro Ser Pro Leu Met Gly Gly Phe Gly Leu
625                      630                  635                  640

aag aac ccg cct cct cag atc ctc atc aaa aac acg cct gtt cct gcg        1968
Lys Asn Pro Pro Pro Gln Ile Leu Ile Lys Asn Thr Pro Val Pro Ala
            645                      650                  655

aat cct ccg gcg gag ttt tca gct aca aag ttt gct tca ttc atc acc        2016
Asn Pro Pro Ala Glu Phe Ser Ala Thr Lys Phe Ala Ser Phe Ile Thr
            660                      665                  670

caa tac tcc aca gga caa gtg agt gtg gaa att gaa tgg gag ctg cag        2064
Gln Tyr Ser Thr Gly Gln Val Ser Val Glu Ile Glu Trp Glu Leu Gln
            675                      680                  685

aaa gaa aac agc aag cgc tgg aat ccc gaa gtg cag tac aca tcc aat        2112
Lys Glu Asn Ser Lys Arg Trp Asn Pro Glu Val Gln Tyr Thr Ser Asn
        690                      695                  700

tat gca aaa tct gcc aac gtt gat ttt act gtg gac aac aat gga ctt        2160
Tyr Ala Lys Ser Ala Asn Val Asp Phe Thr Val Asp Asn Asn Gly Leu
705                      710                  715                  720

tat act gag cct cgc ccc att ggc acc cgt tac ctt acc cgt ccc ctg        2208
Tyr Thr Glu Pro Arg Pro Ile Gly Thr Arg Tyr Leu Thr Arg Pro Leu
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taa   2211

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Glu Gly Ile Arg Glu Trp Trp Asp Leu Lys Pro Gly Ala Pro Lys Pro
            20   25   30

Lys Ala Asn Gln Gln Lys Gln Asp Asp Gly Arg Gly Leu Val Leu Pro
        35   40   45

Gly Tyr Lys Tyr Leu Gly Pro Phe Asn Gly Leu Asp Lys Gly Glu Pro
    50   55   60

Val Asn Ala Ala Asp Ala Ala Ala Leu Glu His Asp Lys Ala Tyr Asp
65   70   75   80

Gln Gln Leu Lys Ala Gly Asp Asn Pro Tyr Leu Arg Tyr Asn His Ala
            85   90   95

Asp Ala Glu Phe Gln Glu Arg Leu Gln Glu Asp Thr Ser Phe Gly Gly
                100   105   110

Asn Leu Gly Arg Ala Val Phe Gln Ala Lys Lys Arg Val Leu Glu Pro
            115   120   125

Leu Gly Leu Val Glu Glu Gly Ala Lys Thr Ala Pro Gly Lys Lys Arg
    130   135   140

Pro Val Glu Gln Ser Pro Gln Glu Pro Asp Ser Ser Ser Gly Ile Gly
145   150   155   160

Lys Thr Gly Gln Gln Pro Ala Lys Lys Arg Leu Asn Phe Gly Gln Thr
                165   170   175

Gly Asp Ser Glu Ser Val Pro Asp Pro Gln Pro Leu Gly Glu Pro Pro
            180   185   190

Ala Thr Pro Ala Ala Val Gly Pro Thr Thr Met Ala Ser Gly Gly Gly
        195   200   205

Ala Pro Met Ala Asp Asn Asn Glu Gly Ala Asp Gly Val Gly Asn Ala
    210   215   220

Ser Gly Asn Trp His Cys Asp Ser Thr Trp Leu Gly Asp Arg Val Ile
225   230   235   240

Thr Thr Ser Thr Arg Thr Trp Ala Leu Pro Thr Tyr Asn Asn His Leu
                245   250   255

Tyr Lys Gln Ile Ser Ser Ala Ser Thr Gly Ala Ser Asn Asp Asn His

```
                 260                        265                        270

Tyr Phe Gly Tyr Ser Thr Pro Trp Gly Tyr Phe Asp Phe Asn Arg Phe
        275                 280                 285

His Cys His Phe Ser Pro Arg Asp Trp Gln Arg Leu Ile Asn Asn Asn
        290             295                 300

Trp Gly Phe Arg Pro Lys Arg Leu Asn Phe Lys Leu Phe Asn Ile Gln
305             310                 315                         320

Val Lys Glu Val Thr Thr Asn Asp Gly Val Thr Thr Ile Ala Asn Asn
                325                 330                 335

Leu Thr Ser Thr Val Gln Val Phe Ser Asp Ser Glu Tyr Gln Leu Pro
                340                 345                 350

Tyr Val Leu Gly Ser Ala His Gln Gly Cys Leu Pro Pro Phe Pro Ala
            355                 360                 365

Asp Val Phe Met Ile Pro Gln Tyr Gly Tyr Leu Thr Leu Asn Asn Gly
    370                 375                 380

Ser Gln Ala Val Gly Arg Ser Ser Phe Tyr Cys Leu Glu Tyr Phe Pro
385                 390                 395                     400

Ser Gln Met Leu Arg Thr Gly Asn Asn Phe Thr Phe Ser Tyr Thr Phe
            405                 410                 415

Glu Glu Val Pro Phe His Ser Ser Tyr Ala His Ser Gln Ser Leu Asp
            420                 425                 430

Arg Leu Met Asn Pro Leu Ile Asp Gln Tyr Leu Tyr Tyr Leu Asn Arg
        435                 440                 445

Thr Gln Asn Gln Ser Gly Ser Ala Gln Asn Lys Asp Leu Leu Phe Ser
    450                 455                 460

Arg Gly Ser Pro Ala Gly Met Ser Val Gln Pro Lys Asn Trp Leu Pro
465                 470                 475                     480

Gly Pro Cys Tyr Arg Gln Gln Arg Val Ser Lys Thr Lys Thr Asp Asn
            485                 490                 495

Asn Asn Ser Asn Phe Thr Trp Thr Gly Ala Ser Lys Tyr Asn Leu Asn
        500                 505                 510

Gly Arg Glu Ser Ile Ile Asn Pro Gly Thr Ala Met Ala Ser His Lys
        515                 520                 525

Asp Asp Glu Asp Lys Phe Phe Pro Met Ser Gly Val Met Ile Phe Gly
    530                 535                 540

Lys Glu Ser Ala Gly Ala Ser Asn Thr Ala Leu Asp Asn Val Met Ile
545                 550                 555                     560

Thr Asp Glu Glu Glu Ile Lys Ala Thr Asn Pro Val Ala Thr Glu Arg
                565                 570                 575

Phe Gly Thr Val Ala Val Asn Phe Gln Ser Ser Ser Thr Asp Pro Ala
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              580                    585                    590
Thr Gly Asp Val His Ala Met Gly Ala Leu Pro Gly Met Val Trp Gln
        595                 600                 605
Asp Arg Asp Val Tyr Leu Gln Gly Pro Ile Trp Ala Lys Ile Pro His
        610                 615                 620
Thr Asp Gly His Phe His Pro Ser Pro Leu Met Gly Gly Phe Gly Leu
625                 630                 635                 640
Lys Asn Pro Pro Pro Gln Ile Leu Ile Lys Asn Thr Pro Val Pro Ala
                645                 650                 655
Asn Pro Pro Ala Glu Phe Ser Ala Thr Lys Phe Ala Ser Phe Ile Thr
                660                 665                 670
Gln Tyr Ser Thr Gly Gln Val Ser Val Glu Ile Glu Trp Glu Leu Gln
        675                 680                 685
Lys Glu Asn Ser Lys Arg Trp Asn Pro Glu Val Gln Tyr Thr Ser Asn
        690                 695                 700
Tyr Ala Lys Ser Ala Asn Val Asp Phe Thr Val Asp Asn Asn Gly Leu
705                 710                 715                 720
Tyr Thr Glu Pro Arg Pro Ile Gly Thr Arg Tyr Leu Thr Arg Pro Leu
                725                 730                 735


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<213>  AAV-1

<220>
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<222>  (1)..(1797)
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acg gct cct gga aag aaa cgt ccg gta gag cag tcg cca caa gag cca      48
Thr Ala Pro Gly Lys Lys Arg Pro Val Glu Gln Ser Pro Gln Glu Pro
1                   5                   10                  15

gac tcc tcc tcg ggc atc ggc aag aca ggc cag cag ccc gct aaa aag     96
Asp Ser Ser Ser Gly Ile Gly Lys Thr Gly Gln Gln Pro Ala Lys Lys
                20                  25                  30

aga ctc aat ttt ggt cag act ggc gac tca gag tca gtc ccc gat cca    144
Arg Leu Asn Phe Gly Gln Thr Gly Asp Ser Glu Ser Val Pro Asp Pro
            35                  40                  45

caa cct ctc gga gaa cct cca gca acc ccc gct gct gtg gga cct act    192
Gln Pro Leu Gly Glu Pro Pro Ala Thr Pro Ala Ala Val Gly Pro Thr
        50                  55                  60

aca atg gct tca ggc ggt ggc gca cca atg gca gac aat aac gaa ggc    240
Thr Met Ala Ser Gly Gly Gly Ala Pro Met Ala Asp Asn Asn Glu Gly
65                  70                  75                  80
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gcc gac gga gtg ggt aat gcc tca gga aat tgg cat tgc gat tcc aca        288
Ala Asp Gly Val Gly Asn Ala Ser Gly Asn Trp His Cys Asp Ser Thr
                85                      90                  95

tgg ctg ggc gac aga gtc atc acc acc agc acc cgc acc tgg gcc ttg        336
Trp Leu Gly Asp Arg Val Ile Thr Thr Ser Thr Arg Thr Trp Ala Leu
            100                 105                 110

ccc acc tac aat aac cac ctc tac aag caa atc tcc agt gct tca acg        384
Pro Thr Tyr Asn Asn His Leu Tyr Lys Gln Ile Ser Ser Ala Ser Thr
        115                 120                 125

ggg gcc agc aac gac aac cac tac ttc ggc tac agc acc ccc tgg ggg        432
Gly Ala Ser Asn Asp Asn His Tyr Phe Gly Tyr Ser Thr Pro Trp Gly
    130                 135                 140

tat ttt gat ttc aac aga ttc cac tgc cac ttt tca cca cgt gac tgg        480
Tyr Phe Asp Phe Asn Arg Phe His Cys His Phe Ser Pro Arg Asp Trp
145                 150                 155                 160

cag cga ctc atc aac aac aat tgg gga ttc cgg ccc aag aga ctc aac        528
Gln Arg Leu Ile Asn Asn Asn Trp Gly Phe Arg Pro Lys Arg Leu Asn
                165                 170                 175

ttc aaa ctc ttc aac atc caa gtc aag gag gtc acg acg aat gat ggc        576
Phe Lys Leu Phe Asn Ile Gln Val Lys Glu Val Thr Thr Asn Asp Gly
            180                 185                 190

gtc aca acc atc gct aat aac ctt acc agc acg gtt caa gtc ttc tcg        624
Val Thr Thr Ile Ala Asn Asn Leu Thr Ser Thr Val Gln Val Phe Ser
        195                 200                 205

gac tcg gag tac cag ctt ccg tac gtc ctc ggc tct gcg cac cag ggc        672
Asp Ser Glu Tyr Gln Leu Pro Tyr Val Leu Gly Ser Ala His Gln Gly
    210                 215                 220

tgc ctc cct ccg ttc ccg gcg gac gtg ttc atg att ccg caa tac ggc        720
Cys Leu Pro Pro Phe Pro Ala Asp Val Phe Met Ile Pro Gln Tyr Gly
225                 230                 235                 240

tac ctg acg ctc aac aat ggc agc caa gcc gtg gga cgt tca tcc ttt        768
Tyr Leu Thr Leu Asn Asn Gly Ser Gln Ala Val Gly Arg Ser Ser Phe
                245                 250                 255

tac tgc ctg gaa tat ttc cct tct cag atg ctg aga acg ggc aac aac        816
Tyr Cys Leu Glu Tyr Phe Pro Ser Gln Met Leu Arg Thr Gly Asn Asn
            260                 265                 270

ttt acc ttc agc tac acc ttt gag gaa gtg cct ttc cac agc agc tac        864
Phe Thr Phe Ser Tyr Thr Phe Glu Glu Val Pro Phe His Ser Ser Tyr
        275                 280                 285

gcg cac agc cag agc ctg gac cgg ctg atg aat cct ctc atc gac caa        912
Ala His Ser Gln Ser Leu Asp Arg Leu Met Asn Pro Leu Ile Asp Gln
    290                 295                 300

tac ctg tat tac ctg aac aga act caa aat cag tcc gga agt gcc caa        960
Tyr Leu Tyr Tyr Leu Asn Arg Thr Gln Asn Gln Ser Gly Ser Ala Gln
305                 310                 315                 320
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aac aag gac ttg ctg ttt agc cgt ggg tct cca gct ggc atg tct gtt        1008
Asn Lys Asp Leu Leu Phe Ser Arg Gly Ser Pro Ala Gly Met Ser Val
            325                 330             335

cag ccc aaa aac tgg cta cct gga ccc tgt tat cgg cag cag cgc gtt        1056
Gln Pro Lys Asn Trp Leu Pro Gly Pro Cys Tyr Arg Gln Gln Arg Val
            340                 345             350

tct aaa aca aaa aca gac aac aac aac agc aat ttt acc tgg act ggt        1104
Ser Lys Thr Lys Thr Asp Asn Asn Asn Ser Asn Phe Thr Trp Thr Gly
            355                 360             365

gct tca aaa tat aac ctc aat ggg cgt gaa tcc atc atc aac cct ggc        1152
Ala Ser Lys Tyr Asn Leu Asn Gly Arg Glu Ser Ile Ile Asn Pro Gly
        370                 375             380

act gct atg gcc tca cac aaa gac gac gaa gac aag ttc ttt ccc atg        1200
Thr Ala Met Ala Ser His Lys Asp Asp Glu Asp Lys Phe Phe Pro Met
385                 390                 395             400

agc ggt gtc atg att ttt gga aaa gag agc gcc gga gct tca aac act        1248
Ser Gly Val Met Ile Phe Gly Lys Glu Ser Ala Gly Ala Ser Asn Thr
                405                 410             415

gca ttg gac aat gtc atg att aca gac gaa gag gaa att aaa gcc act        1296
Ala Leu Asp Asn Val Met Ile Thr Asp Glu Glu Glu Ile Lys Ala Thr
            420                 425             430

aac cct gtg gcc acc gaa aga ttt ggg acc gtg gca gtc aat ttc cag        1344
Asn Pro Val Ala Thr Glu Arg Phe Gly Thr Val Ala Val Asn Phe Gln
            435                 440             445

agc agc agc aca gac cct gcg acc gga gat gtg cat gct atg gga gca        1392
Ser Ser Ser Thr Asp Pro Ala Thr Gly Asp Val His Ala Met Gly Ala
        450                 455             460

tta cct ggc atg gtg tgg caa gat aga gac gtg tac ctg cag ggt ccc        1440
Leu Pro Gly Met Val Trp Gln Asp Arg Asp Val Tyr Leu Gln Gly Pro
465                 470                 475             480

att tgg gcc aaa att cct cac aca gat gga cac ttt cac ccg tct cct        1488
Ile Trp Ala Lys Ile Pro His Thr Asp Gly His Phe His Pro Ser Pro
                485                 490             495

ctt atg ggc ggc ttt gga ctc aag aac ccg cct cct cag atc ctc atc        1536
Leu Met Gly Gly Phe Gly Leu Lys Asn Pro Pro Pro Gln Ile Leu Ile
            500                 505             510

aaa aac acg cct gtt cct gcg aat cct ccg gcg gag ttt tca gct aca        1584
Lys Asn Thr Pro Val Pro Ala Asn Pro Pro Ala Glu Phe Ser Ala Thr
            515                 520             525

aag ttt gct tca ttc atc acc caa tac tcc aca gga caa gtg agt gtg        1632
Lys Phe Ala Ser Phe Ile Thr Gln Tyr Ser Thr Gly Gln Val Ser Val
            530                 535             540

gaa att gaa tgg gag ctg cag aaa gaa aac agc aag cgc tgg aat ccc        1680
Glu Ile Glu Trp Glu Leu Gln Lys Glu Asn Ser Lys Arg Trp Asn Pro
545                 550                 555             560
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```
gaa gtg cag tac aca tcc aat tat gca aaa tct gcc aac gtt gat ttt      1728
Glu Val Gln Tyr Thr Ser Asn Tyr Ala Lys Ser Ala Asn Val Asp Phe
                565                 570                 575

act gtg gac aac aat gga ctt tat act gag cct cgc ccc att ggc acc      1776
Thr Val Asp Asn Asn Gly Leu Tyr Thr Glu Pro Arg Pro Ile Gly Thr
                580                 585                 590

cgt tac ctt acc cgt ccc ctg taa                                      1800
Arg Tyr Leu Thr Arg Pro Leu
        595


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<213>   AAV-1

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Thr Ala Pro Gly Lys Lys Arg Pro Val Glu Gln Ser Pro Gln Glu Pro
1               5                   10                  15

Asp Ser Ser Ser Gly Ile Gly Lys Thr Gly Gln Gln Pro Ala Lys Lys
                20                  25                  30

Arg Leu Asn Phe Gly Gln Thr Gly Asp Ser Glu Ser Val Pro Asp Pro
        35                  40                  45

Gln Pro Leu Gly Glu Pro Pro Ala Thr Pro Ala Ala Val Gly Pro Thr
    50                  55                  60

Thr Met Ala Ser Gly Gly Gly Ala Pro Met Ala Asp Asn Asn Glu Gly
65                  70                  75                  80

Ala Asp Gly Val Gly Asn Ala Ser Gly Asn Trp His Cys Asp Ser Thr
                85                  90                  95

Trp Leu Gly Asp Arg Val Ile Thr Thr Ser Thr Arg Thr Trp Ala Leu
            100                 105                 110

Pro Thr Tyr Asn Asn His Leu Tyr Lys Gln Ile Ser Ser Ala Ser Thr
        115                 120                 125

Gly Ala Ser Asn Asp Asn His Tyr Phe Gly Tyr Ser Thr Pro Trp Gly
    130                 135                 140

Tyr Phe Asp Phe Asn Arg Phe His Cys His Phe Ser Pro Arg Asp Trp
145                 150                 155                 160

Gln Arg Leu Ile Asn Asn Asn Trp Gly Phe Arg Pro Lys Arg Leu Asn
                165                 170                 175

Phe Lys Leu Phe Asn Ile Gln Val Lys Glu Val Thr Thr Asn Asp Gly
                180                 185                 190

Val Thr Thr Ile Ala Asn Asn Leu Thr Ser Thr Val Gln Val Phe Ser
        195                 200                 205

Asp Ser Glu Tyr Gln Leu Pro Tyr Val Leu Gly Ser Ala His Gln Gly
```

```
        210                   215                   220

Cys Leu Pro Pro Phe Pro Ala Asp Val Phe Met Ile Pro Gln Tyr Gly
225                 230                 235                 240

Tyr Leu Thr Leu Asn Asn Gly Ser Gln Ala Val Gly Arg Ser Ser Phe
                245                 250                 255

Tyr Cys Leu Glu Tyr Phe Pro Ser Gln Met Leu Arg Thr Gly Asn Asn
            260                 265                 270

Phe Thr Phe Ser Tyr Thr Phe Glu Glu Val Pro Phe His Ser Ser Tyr
            275                 280                 285

Ala His Ser Gln Ser Leu Asp Arg Leu Met Asn Pro Leu Ile Asp Gln
    290                 295                 300

Tyr Leu Tyr Tyr Leu Asn Arg Thr Gln Asn Gln Ser Gly Ser Ala Gln
305                 310                 315                 320

Asn Lys Asp Leu Leu Phe Ser Arg Gly Ser Pro Ala Gly Met Ser Val
                325                 330                 335

Gln Pro Lys Asn Trp Leu Pro Gly Pro Cys Tyr Arg Gln Gln Arg Val
            340                 345                 350

Ser Lys Thr Lys Thr Asp Asn Asn Asn Ser Asn Phe Thr Trp Thr Gly
    355                 360                 365

Ala Ser Lys Tyr Asn Leu Asn Gly Arg Glu Ser Ile Ile Asn Pro Gly
    370                 375                 380

Thr Ala Met Ala Ser His Lys Asp Asp Glu Asp Lys Phe Phe Pro Met
385                 390                 395                 400

Ser Gly Val Met Ile Phe Gly Lys Glu Ser Ala Gly Ala Ser Asn Thr
                405                 410                 415

Ala Leu Asp Asn Val Met Ile Thr Asp Glu Glu Glu Ile Lys Ala Thr
                420                 425                 430

Asn Pro Val Ala Thr Glu Arg Phe Gly Thr Val Ala Val Asn Phe Gln
    435                 440                 445

Ser Ser Ser Thr Asp Pro Ala Thr Gly Asp Val His Ala Met Gly Ala
    450                 455                 460

Leu Pro Gly Met Val Trp Gln Asp Arg Asp Val Tyr Leu Gln Gly Pro
465                 470                 475                 480

Ile Trp Ala Lys Ile Pro His Thr Asp Gly His Phe His Pro Ser Pro
                485                 490                 495

Leu Met Gly Gly Phe Gly Leu Lys Asn Pro Pro Pro Gln Ile Leu Ile
            500                 505                 510

Lys Asn Thr Pro Val Pro Ala Asn Pro Pro Ala Glu Phe Ser Ala Thr
    515                 520                 525

Lys Phe Ala Ser Phe Ile Thr Gln Tyr Ser Thr Gly Gln Val Ser Val
```

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      530                    535                    540
Glu Ile Glu Trp Glu Leu Gln Lys Glu Asn Ser Lys Arg Trp Asn Pro
545                  550                  555                  560

Glu Val Gln Tyr Thr Ser Asn Tyr Ala Lys Ser Ala Asn Val Asp Phe
                565                  570                  575

Thr Val Asp Asn Asn Gly Leu Tyr Thr Glu Pro Arg Pro Ile Gly Thr
                580                  585                  590

Arg Tyr Leu Thr Arg Pro Leu
        595


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<212>  DNA
<213>  AAV-1

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<222>  (1)..(1602)
<223>

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atg gct tca ggc ggt ggc gca cca atg gca gac aat aac gaa ggc gcc     48
Met Ala Ser Gly Gly Gly Ala Pro Met Ala Asp Asn Asn Glu Gly Ala
1                 5                  10                  15

gac gga gtg ggt aat gcc tca gga aat tgg cat tgc gat tcc aca tgg     96
Asp Gly Val Gly Asn Ala Ser Gly Asn Trp His Cys Asp Ser Thr Trp
                20                  25                  30

ctg ggc gac aga gtc atc acc acc agc acc cgc acc tgg gcc ttg ccc    144
Leu Gly Asp Arg Val Ile Thr Thr Ser Thr Arg Thr Trp Ala Leu Pro
          35                  40                  45

acc tac aat aac cac ctc tac aag caa atc tcc agt gct tca acg ggg    192
Thr Tyr Asn Asn His Leu Tyr Lys Gln Ile Ser Ser Ala Ser Thr Gly
      50                  55                  60

gcc agc aac gac aac cac tac ttc ggc tac agc acc ccc tgg ggg tat    240
Ala Ser Asn Asp Asn His Tyr Phe Gly Tyr Ser Thr Pro Trp Gly Tyr
65                  70                  75                  80

ttt gat ttc aac aga ttc cac tgc cac ttt tca cca cgt gac tgg cag    288
Phe Asp Phe Asn Arg Phe His Cys His Phe Ser Pro Arg Asp Trp Gln
                85                  90                  95

cga ctc atc aac aac aat tgg gga ttc cgg ccc aag aga ctc aac ttc    336
Arg Leu Ile Asn Asn Asn Trp Gly Phe Arg Pro Lys Arg Leu Asn Phe
                100                 105                 110

aaa ctc ttc aac atc caa gtc aag gag gtc acg acg aat gat ggc gtc    384
Lys Leu Phe Asn Ile Gln Val Lys Glu Val Thr Thr Asn Asp Gly Val
          115                 120                 125

aca acc atc gct aat aac ctt acc agc acg gtt caa gtc ttc tcg gac    432
Thr Thr Ile Ala Asn Asn Leu Thr Ser Thr Val Gln Val Phe Ser Asp
```

```
tcg gag tac cag ctt ccg tac gtc ctc ggc tct gcg cac cag ggc tgc      480
Ser Glu Tyr Gln Leu Pro Tyr Val Leu Gly Ser Ala His Gln Gly Cys
145                 150                 155                 160

ctc cct ccg ttc ccg gcg gac gtg ttc atg att ccg caa tac ggc tac      528
Leu Pro Pro Phe Pro Ala Asp Val Phe Met Ile Pro Gln Tyr Gly Tyr
                    165                 170                 175

ctg acg ctc aac aat ggc agc caa gcc gtg gga cgt tca tcc ttt tac      576
Leu Thr Leu Asn Asn Gly Ser Gln Ala Val Gly Arg Ser Ser Phe Tyr
                180                 185                 190

tgc ctg gaa tat ttc cct tct cag atg ctg aga acg ggc aac aac ttt      624
Cys Leu Glu Tyr Phe Pro Ser Gln Met Leu Arg Thr Gly Asn Asn Phe
            195                 200                 205

acc ttc agc tac acc ttt gag gaa gtg cct ttc cac agc agc tac gcg      672
Thr Phe Ser Tyr Thr Phe Glu Glu Val Pro Phe His Ser Ser Tyr Ala
        210                 215                 220

cac agc cag agc ctg gac cgg ctg atg aat cct ctc atc gac caa tac      720
His Ser Gln Ser Leu Asp Arg Leu Met Asn Pro Leu Ile Asp Gln Tyr
225                 230                 235                 240

ctg tat tac ctg aac aga act caa aat cag tcc gga agt gcc caa aac      768
Leu Tyr Tyr Leu Asn Arg Thr Gln Asn Gln Ser Gly Ser Ala Gln Asn
                    245                 250                 255

aag gac ttg ctg ttt agc cgt ggg tct cca gct ggc atg tct gtt cag      816
Lys Asp Leu Leu Phe Ser Arg Gly Ser Pro Ala Gly Met Ser Val Gln
                260                 265                 270

ccc aaa aac tgg cta cct gga ccc tgt tat cgg cag cag cgc gtt tct      864
Pro Lys Asn Trp Leu Pro Gly Pro Cys Tyr Arg Gln Gln Arg Val Ser
            275                 280                 285

aaa aca aaa aca gac aac aac aac agc aat ttt acc tgg act ggt gct      912
Lys Thr Lys Thr Asp Asn Asn Asn Ser Asn Phe Thr Trp Thr Gly Ala
        290                 295                 300

tca aaa tat aac ctc aat ggg cgt gaa tcc atc atc aac cct ggc act      960
Ser Lys Tyr Asn Leu Asn Gly Arg Glu Ser Ile Ile Asn Pro Gly Thr
305                 310                 315                 320

gct atg gcc tca cac aaa gac gac gaa gac aag ttc ttt ccc atg agc      1008
Ala Met Ala Ser His Lys Asp Asp Glu Asp Lys Phe Phe Pro Met Ser
                325                 330                 335

ggt gtc atg att ttt gga aaa gag agc gcc gga gct tca aac act gca      1056
Gly Val Met Ile Phe Gly Lys Glu Ser Ala Gly Ala Ser Asn Thr Ala
                340                 345                 350

ttg gac aat gtc atg att aca gac gaa gag gaa att aaa gcc act aac      1104
Leu Asp Asn Val Met Ile Thr Asp Glu Glu Glu Ile Lys Ala Thr Asn
            355                 360                 365

cct gtg gcc acc gaa aga ttt ggg acc gtg gca gtc aat ttc cag agc      1152
Pro Val Ala Thr Glu Arg Phe Gly Thr Val Ala Val Asn Phe Gln Ser
```

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agc agc aca gac cct gcg acc gga gat gtg cat gct atg gga gca tta          1200
Ser Ser Thr Asp Pro Ala Thr Gly Asp Val His Ala Met Gly Ala Leu
385             390             395                 400

cct ggc atg gtg tgg caa gat aga gac gtg tac ctg cag ggt ccc att          1248
Pro Gly Met Val Trp Gln Asp Arg Asp Val Tyr Leu Gln Gly Pro Ile
                405             410             415

tgg gcc aaa att cct cac aca gat gga cac ttt cac ccg tct cct ctt          1296
Trp Ala Lys Ile Pro His Thr Asp Gly His Phe His Pro Ser Pro Leu
            420             425             430

atg ggc ggc ttt gga ctc aag aac ccg cct cct cag atc ctc atc aaa          1344
Met Gly Gly Phe Gly Leu Lys Asn Pro Pro Pro Gln Ile Leu Ile Lys
        435             440             445

aac acg cct gtt cct gcg aat cct ccg gcg gag ttt tca gct aca aag         1392
Asn Thr Pro Val Pro Ala Asn Pro Pro Ala Glu Phe Ser Ala Thr Lys
        450             455             460

ttt gct tca ttc atc acc caa tac tcc aca gga caa gtg agt gtg gaa         1440
Phe Ala Ser Phe Ile Thr Gln Tyr Ser Thr Gly Gln Val Ser Val Glu
465             470             475             480

att gaa tgg gag ctg cag aaa gaa aac agc aag cgc tgg aat ccc gaa          1488
Ile Glu Trp Glu Leu Gln Lys Glu Asn Ser Lys Arg Trp Asn Pro Glu
                485             490             495

gtg cag tac aca tcc aat tat gca aaa tct gcc aac gtt gat ttt act          1536
Val Gln Tyr Thr Ser Asn Tyr Ala Lys Ser Ala Asn Val Asp Phe Thr
            500             505             510

gtg gac aac aat gga ctt tat act gag cct cgc ccc att ggc acc cgt          1584
Val Asp Asn Asn Gly Leu Tyr Thr Glu Pro Arg Pro Ile Gly Thr Arg
        515             520             525

tac ctt acc cgt ccc ctg taa                                              1605
Tyr Leu Thr Arg Pro Leu
    530
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<210> 17
<211> 534
<212> PRT
<213> AAV-1

<400> 17
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Met Ala Ser Gly Gly Gly Ala Pro Met Ala Asp Asn Asn Glu Gly Ala
1               5               10              15

Asp Gly Val Gly Asn Ala Ser Gly Asn Trp His Cys Asp Ser Thr Trp
            20              25              30

Leu Gly Asp Arg Val Ile Thr Thr Ser Thr Arg Thr Trp Ala Leu Pro
        35              40              45

Thr Tyr Asn Asn His Leu Tyr Lys Gln Ile Ser Ser Ala Ser Thr Gly
    50              55              60
```

```
Ala Ser Asn Asp Asn His Tyr Phe Gly Tyr Ser Thr Pro Trp Gly Tyr
65                  70              75                  80

Phe Asp Phe Asn Arg Phe His Cys His Phe Ser Pro Arg Asp Trp Gln
                85              90                  95

Arg Leu Ile Asn Asn Asn Trp Gly Phe Arg Pro Lys Arg Leu Asn Phe
                100             105             110

Lys Leu Phe Asn Ile Gln Val Lys Glu Val Thr Thr Asn Asp Gly Val
        115             120             125

Thr Thr Ile Ala Asn Asn Leu Thr Ser Thr Val Gln Val Phe Ser Asp
    130             135             140

Ser Glu Tyr Gln Leu Pro Tyr Val Leu Gly Ser Ala His Gln Gly Cys
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Pro Lys Asn Trp Leu Pro Gly Pro Cys Tyr Arg Gln Gln Arg Val Ser
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Ser Lys Tyr Asn Leu Asn Gly Arg Glu Ser Ile Ile Asn Pro Gly Thr
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Gly Val Met Ile Phe Gly Lys Glu Ser Ala Gly Ala Ser Asn Thr Ala
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Met Gly Gly Phe Gly Leu Lys Asn Pro Pro Pro Gln Ile Leu Ile Lys
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Phe Ala Ser Phe Ile Thr Gln Tyr Ser Thr Gly Gln Val Ser Val Glu
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